

# TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

An Accessibility Project for Indiranagar Metro Station



# TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

## »» DEVELOPED BY:

*EMBARQ India*

## »» IN COLLABORATION WITH:

*Directorate of Urban Land Transport (DULT), Government of Karnataka  
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»» EMBARQ India is the WRI Center for Sustainable Transport and a member of the EMBARQ Network. Head-quartered in Mumbai, EMBARQ India started activities in 2006, working with Indian authorities to catalyze and help implement solutions to the problems of urban mobility. EMBARQ India has two other India offices in Bangalore and New Delhi

»» EMBARQ India is a not-for-profit initiative of the World Resources Institute (WRI), an environmental think tank headquartered in Washington, D.C. that goes beyond research to find practical ways to protect the earth and improve people's lives.

»» EMBARQ has created a network of centres in USA, Brasil, Mexico, Andean Region, Turkey and India that work together with local transport authorities to reduce pollution, improve public health, create safe, accessible and attractive urban public spaces. The EMBARQ Network employs over 60 experts from varying fields act-ing as a social, financial and environmental catalyst in the search for solutions to problems of urban mobility.

## TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

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*Jayeshankar BM – Chairman Adarsh Group*

*Krishnamurthy Nayak - President, Indiranagar Residents Welfare Association*

*Mathews B.J, Professor - Resident of Indiranagar*

*Mithila Jha - Consultant, Bangalore Metropolitan Transport Corporation*

*Naresh Narasimhan - Principal Architect, VA Group*

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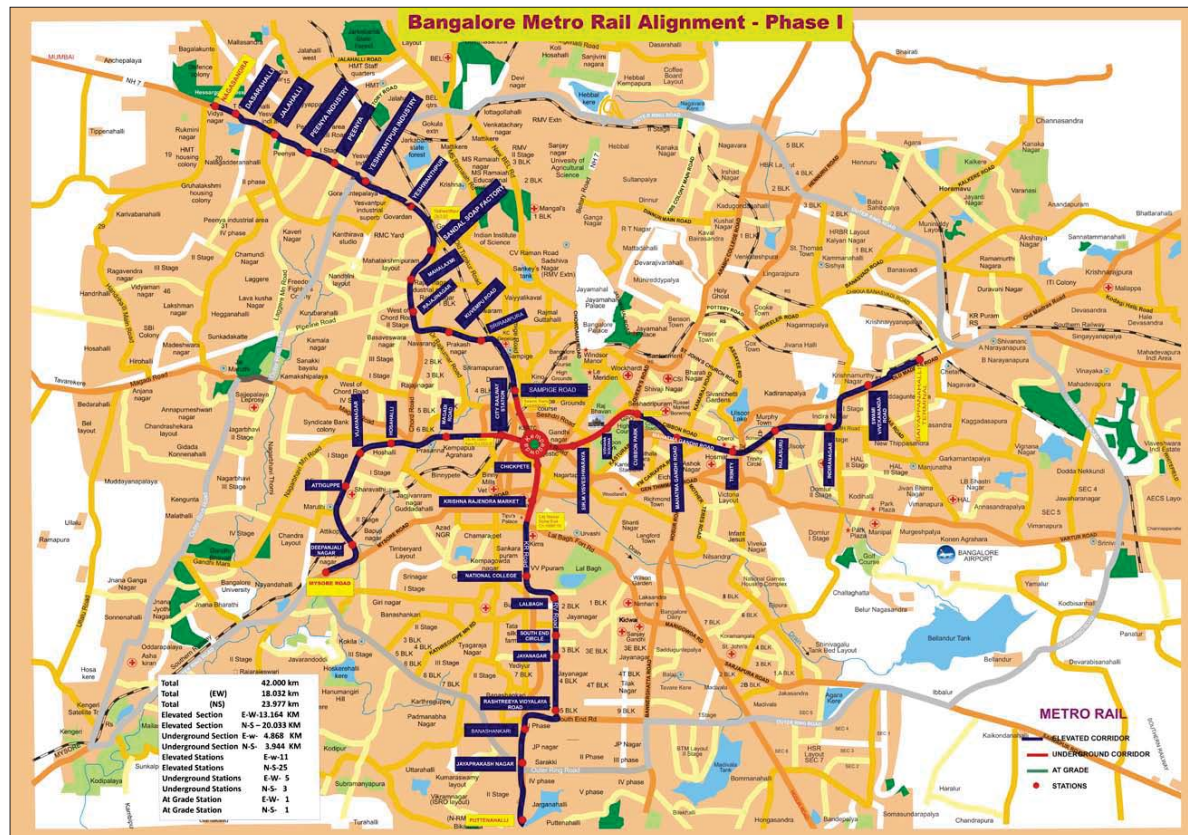


# CHAPTER

## INTRODUCTION



PROJECT BRIEF



Map showing the Bangalore Metro Rail alignment  
Source: Bangalore Metro Rail Website

The Bangalore Metro Rail Corporation (BMRC) the agency responsible for coordinating the planning, design and construction of the metro rail alignment has approached EMBARQ India to analyze accessibility along Reach-1 of the metro rail, running between Baiyappanahalli to MG Road (See Fig above). Implementation of the elevated parts of Phase-1 has been divided into four reaches;

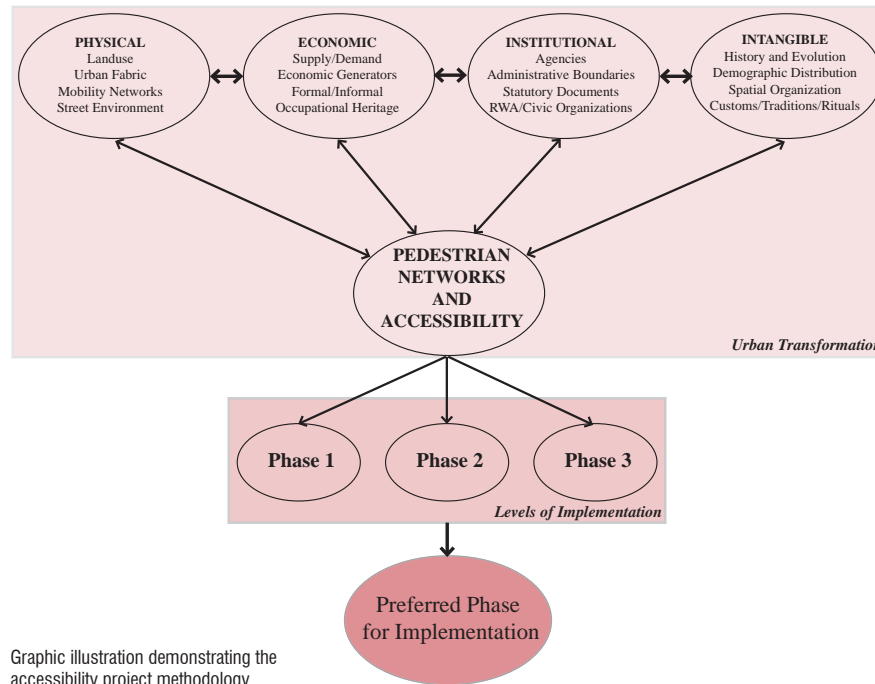
- Reach-1 (east): Baiyyappanahalli-M.G. Road
- Reach-2 (west): Mysore Road-Magadi Road
- Reach-3 (north): Swastik-Peenya
- Reach-3A (north): Yashwantpur to Penya Depot
- Reach-3B (north): Peenya Village Station to Hessarghatta Cross Station
- Reach-4 (south): K.R. Road-R.V. Road
- Reach-4A (south): R.V.Road to Puttenahalli

Reach-1 of the metro alignment consists of 6 stations along a 6 kilometers stretch. EMBARQ India in the process of developing a template to study the accessibility to the Metro Stations chose Indiranagar as the station to be taken up as the pilot project. The objective of the accessibility project is to analyze the access to public transit nodes and how they are affected by several 'Urban Components' that make up the urban settlements/neighborhoods such as; Physical, Economic, Institutional and Intangible.

Each of these 'Urban Components' have a direct impact on the pedestrian networks that exist in a city and thus have a bearing on the accessibility to mass transit nodes such as bus stops and metro stations.

**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**»» METHODOLOGY**



Graphic illustration demonstrating the accessibility project methodology

The methodology starts with identifying the project area with respect to the scope of the project and then transitions into studying the urban fabric/settlement around the metro station. The methodology is structured in such a way that it addresses broad connections of networks at the city and neighborhood level and at the same time is focused to identify and detail out street design parameters, all of which affect the end user namely the commuters/pedestrians.

The methodology comprises the following stages:

- Identifying a site that provides the complexities that exist in present-day urban neighborhoods and hence provide an opportunity to address current state of affairs and the solutions to overcome some of the critical issues at stake.
- Identifying a Core area (approx a city block in depth and width) within the selected neighborhood that houses the transit hub and a larger Buffer area (approx 500 meters from the transit hub) that acts as a feeder to the Core area (a 500 Meter radius is an internationally accepted reasonable distance for walking and bicycling).
- Identification of 'Urban Components' that affect pedestrian networks/accessibility to the Core and Buffer

- Identification of linkages between 'Urban Components'
- Data collection for 'Urban Components' in the Core and Buffer
- Analysis on how each 'Urban Component' affect pedestrian networks in its present and current context
- Identifying urban transformation triggers such as, access and proximity to the stations, land costs, plot size, land ownership, current FAR achieved and the likelihood of change in land use.
- Analysis how each 'Urban Component' will likely get affected by the transformation process and in-turn affects the pedestrian networks and their accessibility.
- Propose 3 scenarios based on the implementation strategy wherein each scenario will be taken up at key milestones of the implementation of the metro corridor.
- Presentation to stakeholders and community.

**>> METHODOLOGY**

Urban components can be broadly divided into four categories namely physical, institutional, economic and intangible. Each of these components can be again be divided into the following subcategories;

**PHYSICAL**

## 1. LAND USE

- Interpreting land use as defined by pedestrian mobility

## 2. URBAN FABRIC

- Floor Area Ratio (FAR)
- Land Ownership
- Building height
- Building use
- Setbacks
- Ground coverage or built vs. open plan
- Open spaces
- Infrastructure (water supply, electricity, storm and sewer)
- Natural features and environment
- Green cover
- Legibility of the place

## 3. MOBILITY NETWORKS

- Road networks and hierarchy
- Traffic volume studies
- Parking
- Existing modes of transport
- Bicycle networks, if any

## 4. STREET ENVIRONMENT

- Pavements
- Lighting
- Public toilets
- Surface treatment
- Age/gender usage
- Safety and security

**INSTITUTIONAL**

- Administrative boundaries
- Responsible agencies
- Identification of statutory documents
- Resident Welfare Associations and Civil Societies

**ECONOMIC**

- Economic generators
- Supply and Demand diagram
- Nature of economy at the city level and within the precinct
- Occupational Heritage, if any

**INTANGIBLE (SOCIAL AND CULTURAL)**

- History and evolution of the settlement
- Demographic distribution of communities
- Spatial organization of communities in the settlement/precinct
- Customs, traditions, beliefs, rituals and festivals
- Identity of the precinct



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**»» METHODOLOGY**

The structure of the project shown below is a product of the methodology mentioned earlier. It gives a detailed step-by-step description of the implementation of the methodology. The structure also identifies 3 tiers of the project impact namely city, neighborhood and street / plots. Each urban component identified in the methodology is analyzed at all three levels and their inter-connections and impact on the urban fabric.

Methodology for Accessibility Project - Indiranagar Metro Station						
	PHASE-1		PHASE-2		PHASE-3	
<b>Models for Accessibility studies</b>	based on Bridging Existing Gaps in Connectivity		based on providing connectivity to existing+ proposed networks		based on Scenarios triggered by transformations	
<b>Remarks</b>	existing Gaps are Bridged;		gaps are identified for a longer 'horizon period'. Gaps are bridged through phased projects;		study of transformation parameters gives rise to issues and opportunities. These are synthesised into Scenarios, which are then opened out for public opinion;	
	Study Parameters	Scale of Study	Study Parameters	Scale of Study	Study Parameters	Scale of Study
<b>Data collection</b>	Transport Network at level of Bangalore	City	Transport Network at level of Bangalore	City	Land Value (Evolution)	City + Buffer + Core
	Road Network (existing)	City+ Buffer	Road Network (Existing+ Proposed)	City+ Buffer	FSI (Evolution corresponding to Land Value)	City + Buffer + Core
	Bus Network (existing)	City+ Buffer	Bus Network (Existing+ Proposed)	City+ Buffer	Land Use (evolution)	City + Buffer + Core
	Rail Network (existing)	City	BMRCL Network (Existing+ Proposed)	City+ Buffer	Profile of Users including visitors, residents and Passerby (Evolution)	Buffer + Core
	Para-Transit (existing)	City+ Buffer	HSRL Network (Existing+ Proposed)	City	Sense of Place Including Physical and NON Physical components	Buffer + Core
	Pedestrian/ Biking (existing)	Buffer + Core	Mono Rail (Existing+ Proposed)	City	Identity of Place	City + Buffer + Core
	Parking (existing)	Buffer + Core	Rail Network (Existing+ Proposed)	City		
	Goods/ Transport (existing)	City + Buffer	Para-Transit (Existing+ Proposed)	City+ Buffer		
			Pedestrian/ Biking (Existing+ Proposed)	Buffer + Core		
			Parking (Existing+ Proposed)	Buffer + Core		
			Goods/ Transport (Existing+ Proposed)	City + Buffer		
<b>Analysis</b>	<b>Identifying Gaps:</b>		<b>Identifying Gaps:</b>		<b>Identifying Potential Transformation Triggers:</b>	
	parking study	Buffer + Core	review of existing statutory documents	City	Evolution of the city	City + Buffer + Core
	walkability study	Buffer + Core	review of proposed planning documents	City	real estate study	City + Buffer + Core
	barrier-free areas	Buffer + Core	projections + simulations as per statutory documents	City	legibility study	Buffer + Core
	volume counts	Buffer	conflicts arising out of new networks to be introduced in the future	City	typology study	Buffer + Core
	conflict resolution ie traffic jams, accidents etc.	Buffer + Core			fabric study	Buffer + Core
					public space study	Buffer + Core
					Open space study	Buffer + Core
					Study of communities and the use of space, rituals etc.	Buffer
					study of heritage including built and natural	Buffer
<b>Public process</b>					S1 Towards a NON intentional accretive scenario as it is going today	
	Exhibition of proposed projects		Exhibition of potential projects		S2 Towards a NON Residential Future -gentrification of the area-	
					S3 Towards a more contained Residential Future- social fabric remains intact	
<b>Final projects</b>						

Informal Sector	
facilities	
public Space	
fabric	Ritual
Typology	Culture
legibility	Communities
Physical	Non Physical
Physical	Non Physical
Home	Local
Work	regional
recreation	national
religious	

## >> DATA COLLECTION

Firstly the project identified all possible data and information required for the analysis and then identified gaps in the data that was gathered from primary sources such as BMRC DPR, Comprehensive Development Plans, Census Data, etc.

Upon review of data from primary sources a framework was put together to collect information to fill the gaps by means of secondary data collection. The following is a summary of all data collected by EMBARQ identified as the primary and secondary data:

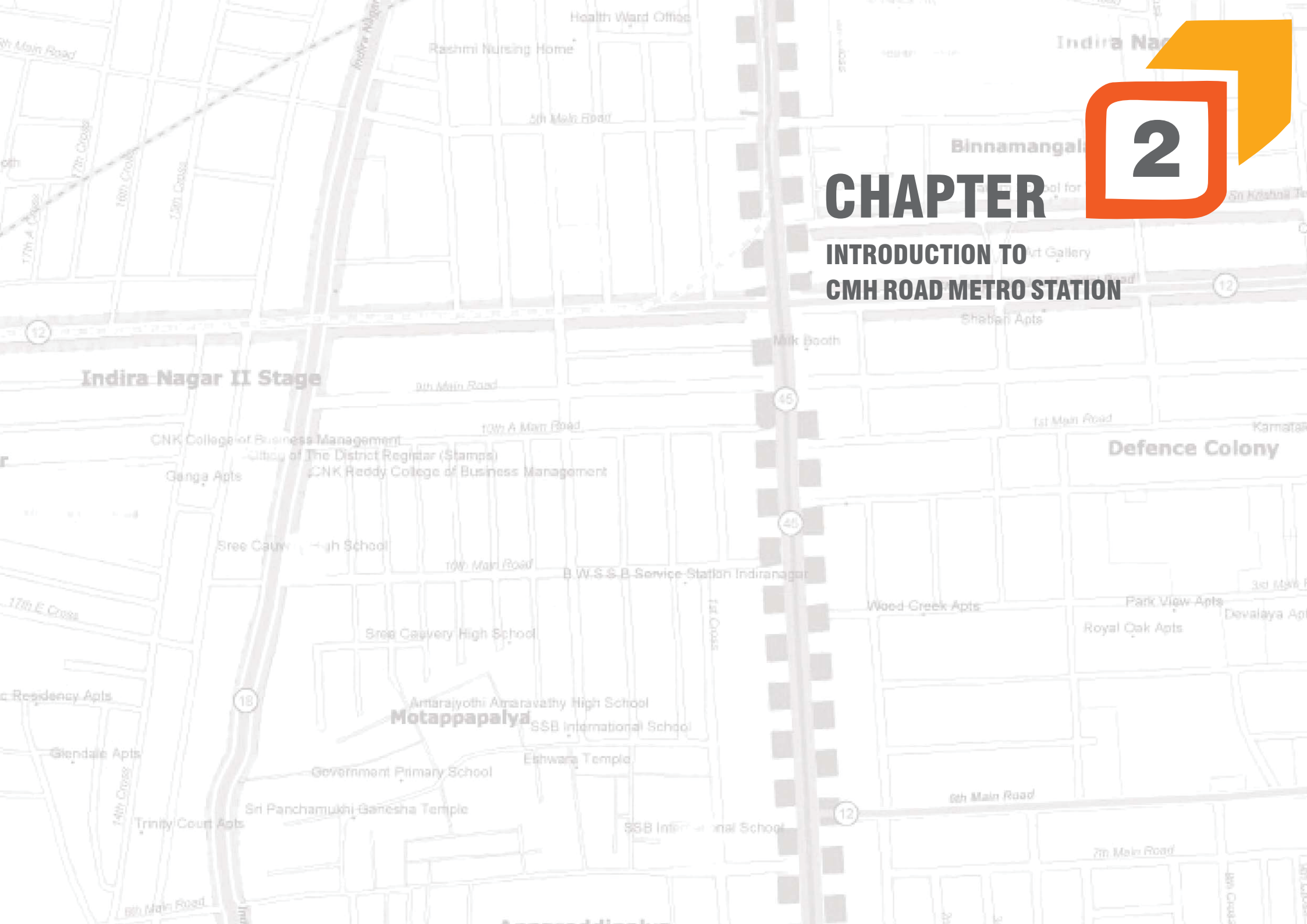
- Comprehensive Development Plan (CDP)  
Proposed Land Use, Right of Way (RoW), Amenities and Open Spaces, Mutation Corridors, Floor Area Ratio (FAR), Ground Coverage, Setbacks, Building Heights.
- BMRC DPR:  
Projected commuter volumes at the station during peak hour, section load at peak hour and daily loads.
- Bangalore Metropolitan Transport Corporation (BMTCL)  
Route alignment, bus stops, depot locations, frequency of buses and metro feeder bus services.
- Administrative boundaries  
BBMP, BMRC, BMTCL, BESCOM, BWSSB, Post Office, Law enforcement, RWAs.
- Mapping Information  
Buffer (750 meters)  
Core Area (150 meters)  
Total Station Survey (TSS)  
Right of way, existing Metro alignment, location of Piers, Infrastructure (water, sewer, electricity), traffic lights, topography, pavement widths, location of trees, signboards.
- Census Data  
Total population, gender breakup, number of households, employment ratio and literacy levels.
- Pedestrian Origin Destination Survey (OD)  
Mobility networks, pedestrian experience rating, distances travelled, age /gender breakup, purpose of commute.
- Resident Survey  
Personal details, Household details, Employment details, perception of walking / cycling / public transport, daily trip frequency and mode of transport, parking requirement, parking permit control.
- Visitor Survey  
Personal details, mode of daily commute, Origin - Destination, purpose of visit, perception of walking / cycling /public transport, daily trip frequency and mode of transport and parking requirement.
- Passer-by Survey  
Personal details, mode of transport, purpose of visit, origin-destination, frequency of visit and perception of walking / cycling /public transport.
- Traffic and Pedestrian Counts  
Pedestrian volume counts at junctions.
- Urban Fabric Data  
Building use, building heights, typology, land ownership, road hierarchy, street sections and activities and generators, parking, auto / taxi / bus stands.
- Street Sections  
Arterial roads, secondary roads, junctions, intersections, stretch below metro station.
- Photo Documentation  
Street character, built character, junctions, infrastructure, activities.
- Real Estate Prices  
Real Estate prices for the last three decades (1980-2010)



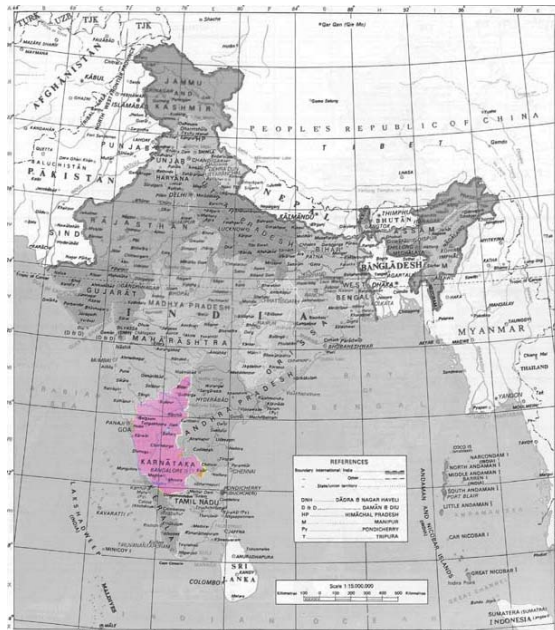
# CHAPTER

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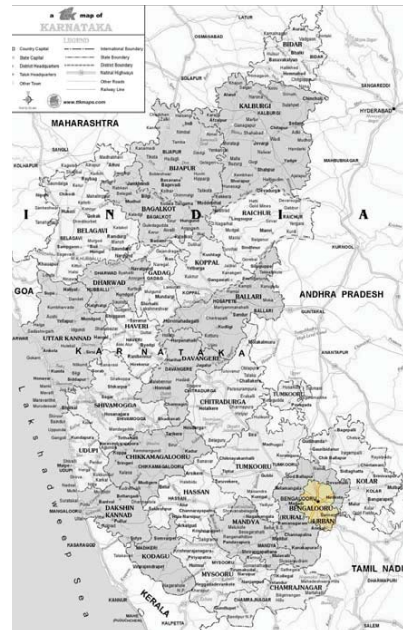
## INTRODUCTION TO CMH ROAD METRO STATION



**➤➤ BANGALORE METRO RAIL CORPORATION - CONTEXT AND BACKGROUND**



Map showing the location of Karnataka State in India  
Source: Survey of India



Map showing the location of Bangalore in Karnataka State  
Source: Survey of India



Map showing Bangalore Metropolitan Region Limits  
Source: VA Associates, Bangalore



Map showing the alignment of Bangalore Metro Rail (all phases/reaches)  
Source: Bangalore Metro Rail Website

The criteria for identification of the project area was evolved keeping in mind the complexities that exist in urban settlements and the challenges that neighbourhoods face with the on going transformation.

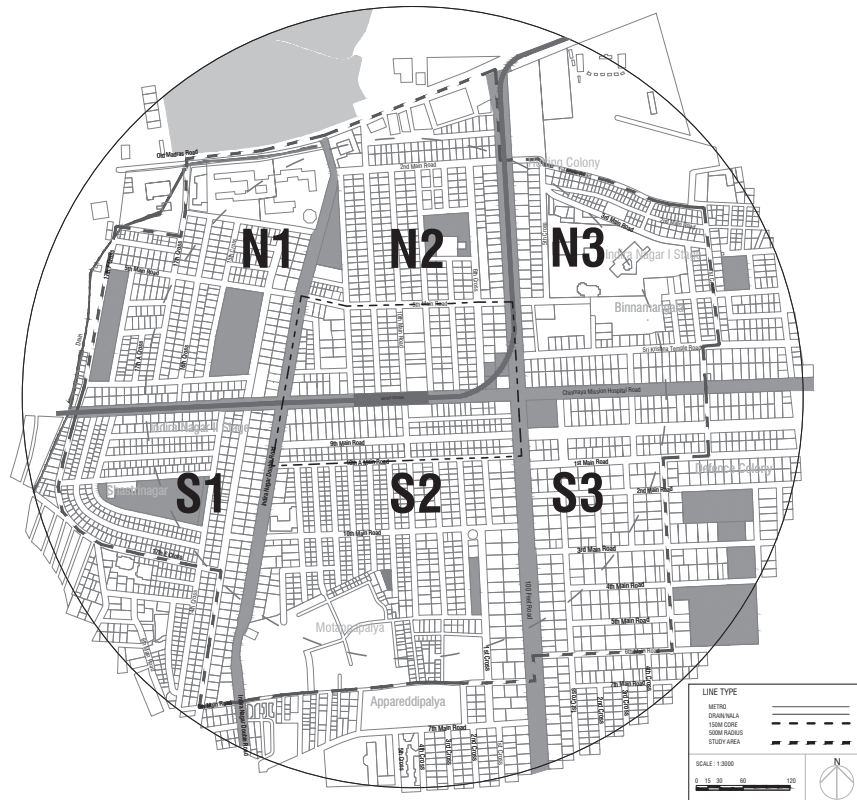
The CMH Road Metro Station was identified as a potential area to be taken up for the accessibility project after careful surveys and walkthrough the precinct surrounding the metro station.

The project area was carefully evaluated to ascertain that it satisfies the following key criteria for selection as pilot, namely :

- Built heights and density
- Distribution of land use
- Distribution of Residential-Commercial-Retail mix among neighbourhoods
- Distribution of building typologies
- Open spaces
- Economic, social and cultural generators, etc.

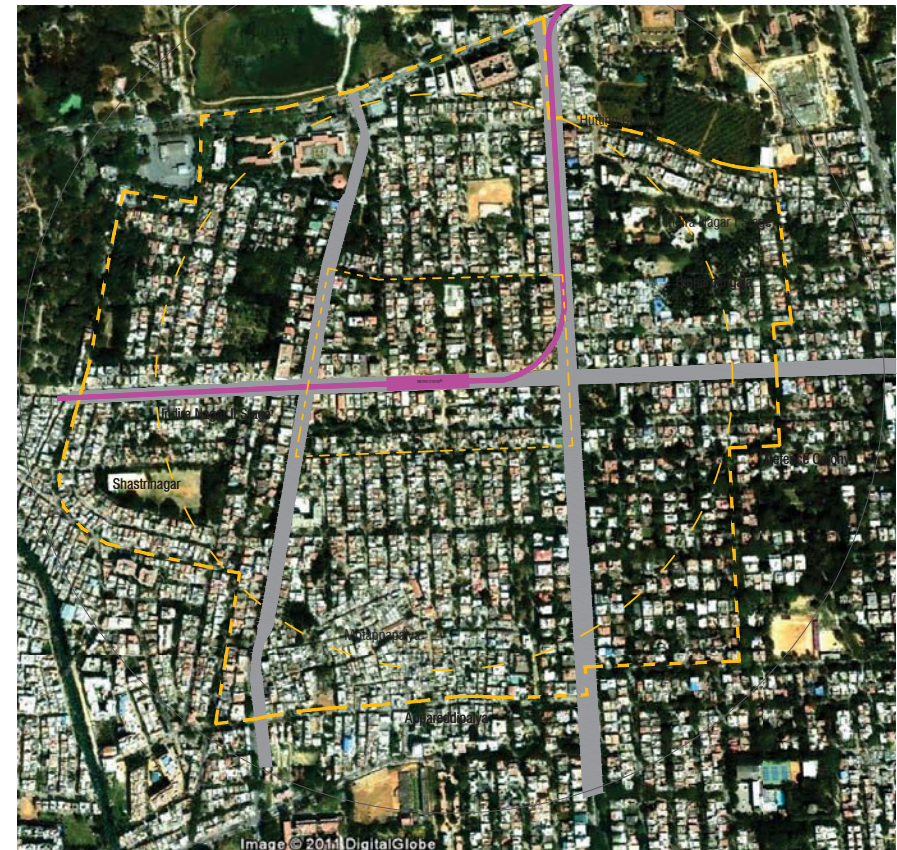
**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**➤➤ PROJECT AREA: CMH ROAD METRO STATION PRECINCT**



Consolidated Base Map of Project Area  
Source: Sky Group

The project area is located in the eastern part of the city, accessed by 3 major arterial roads namely CMH Road running East-West between the neighbourhood of Ulsoor and 80 feet road Indiranagar, 100 feet road running North-South between Old Madras Road and Airport Road and lastly Old Madras Road running East-West at the northern periphery of the precinct. The precinct also comprises a neighbourhood arterial road (Double Road) that runs North-South between Old Madras road and which eventually loops back to 100 feet road Indiranagar.



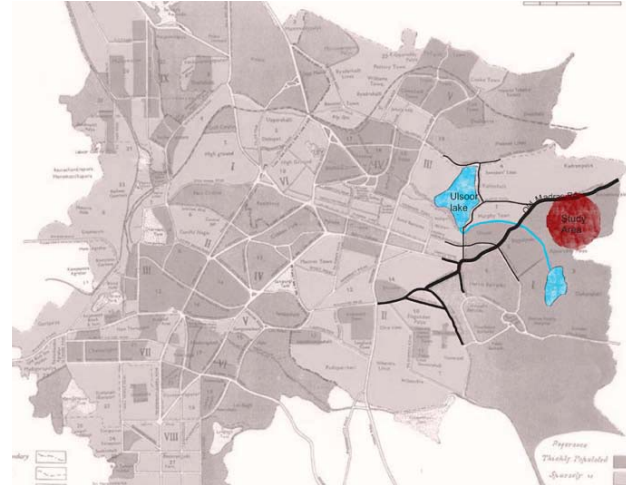
Satellite Image of Project Area  
Source: Sky Group

The project area has been divided into six sectors namely - N1, N2, N3, and S1, S2, S3, where 'N' denotes sectors North of CMH Road and 'S' denotes sectors South of CMH Road. The numbers associated with North and South prefix are a result of nomenclature of sectors from west to east.

**➤➤ HISTORY AND EVOLUTION OF PROJECT AREA PRECINCT**



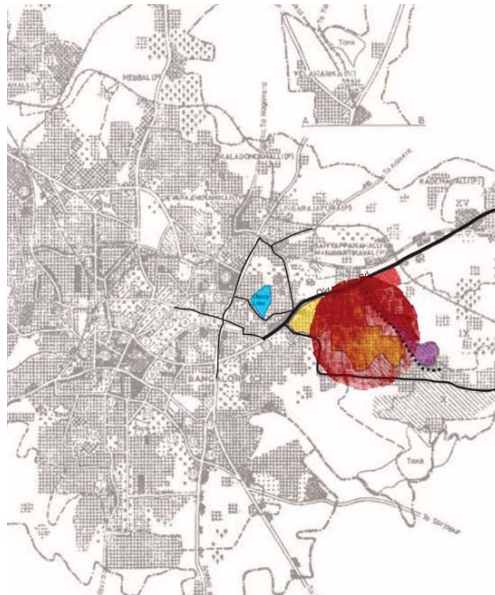
Map of Bangalore in 1895 with project area highlighted  
Source: Census of India



Map of Bangalore in 1941 with project area highlighted  
Source: Census of India



Map of Bangalore in 1971 with project area highlighted  
Source: Census of India



Map of Bangalore in 1981 with project area highlighted  
Source: Census of India

The history of Indiranagar dates back to 1954 when the City Improvement Trust Board of Bangalore (CITB) laid out the neighbourhood and allocated nearly 40 percent of the land for economically weaker sections.

Towards early 1960's Defence Colony was set up as a neighbourhood exclusively for people from the armed services. This neighbourhood still retains its exclusivity as one of the better planned and maintained part of the precinct.

It is a high value area, with steep real estate prices and two, relatively new, booming commercial roads - 100 feet road and CMH Road. It is located to the East of Bangalore. It is located about 4 KM East of MG Road. The commercial area of Indiranagar is around CMH - Chinmaya Mission Hospital - Road, which boasts a wide range of international labels, appliance showrooms, salons and high-end restaurants.



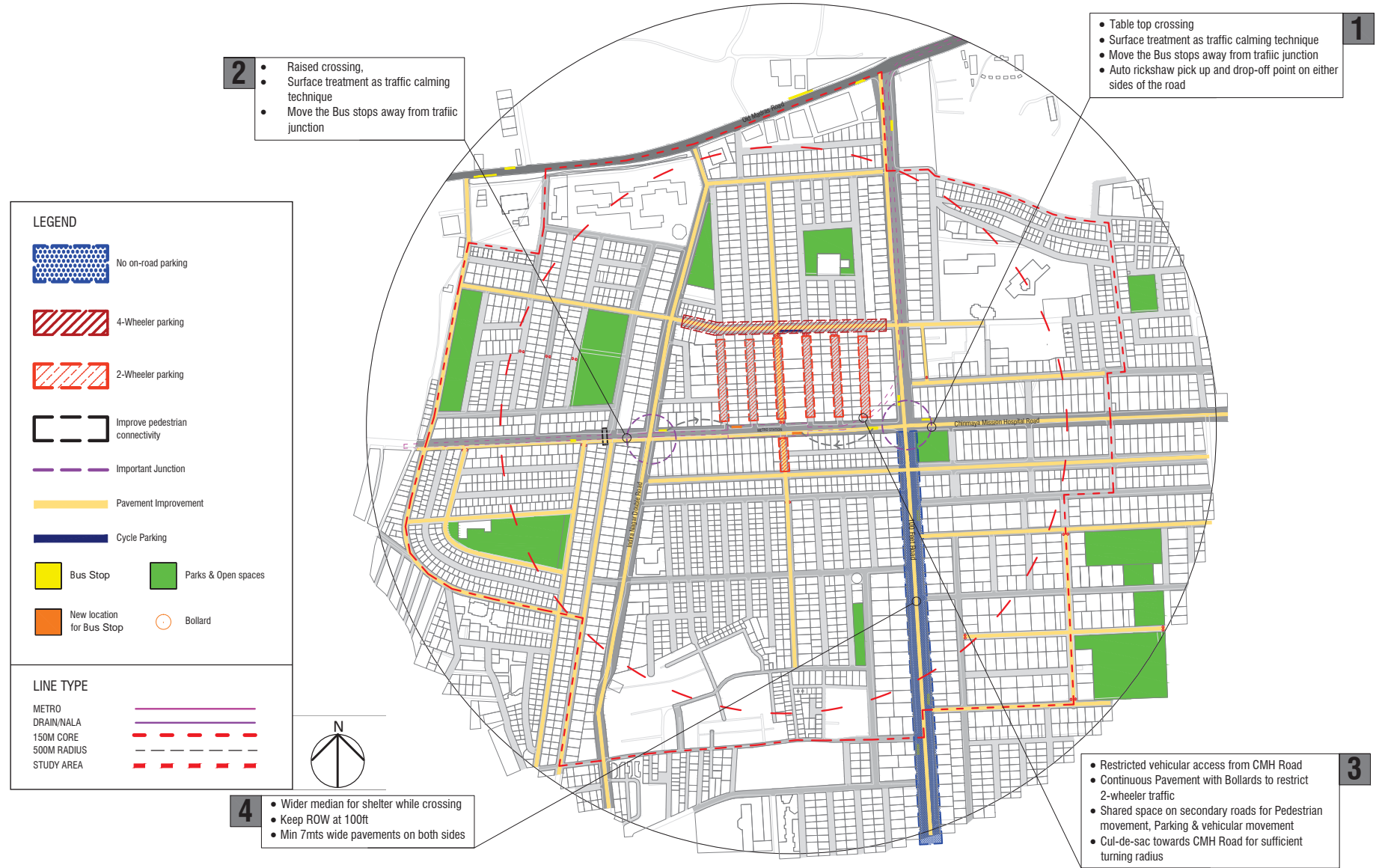
# CHAPTER

## PROPOSALS



**>> PROPOSALS**

**PHASE ONE - IMMEDIATE IMPLEMENTATION**





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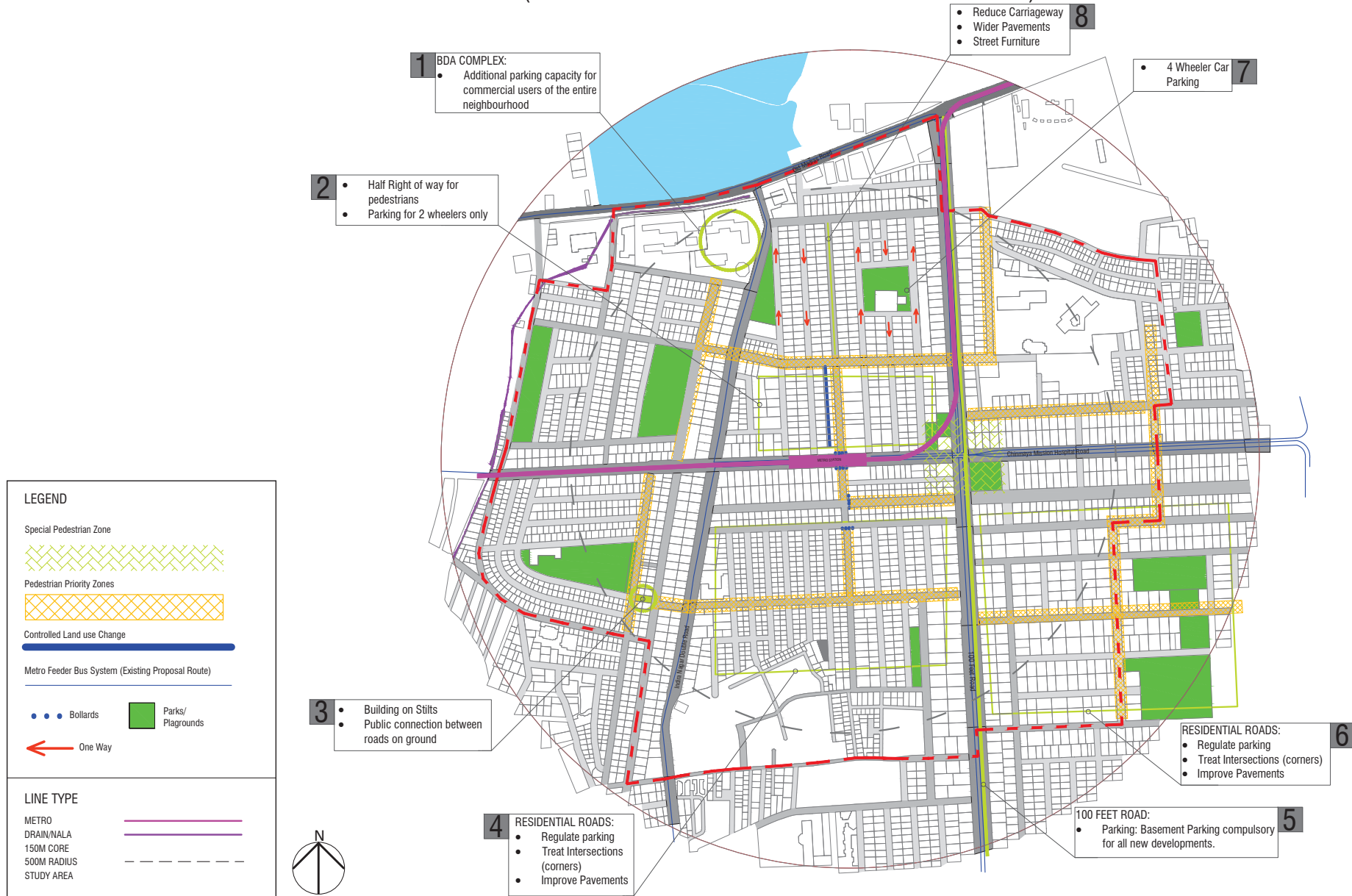
PROPOSALS

PHASE TWO - IMPLEMENTATION AFTER 5 YEARS (AFTER N-S CORRIDOR OF METRO IS COMPLETED)



**>> PROPOSALS**

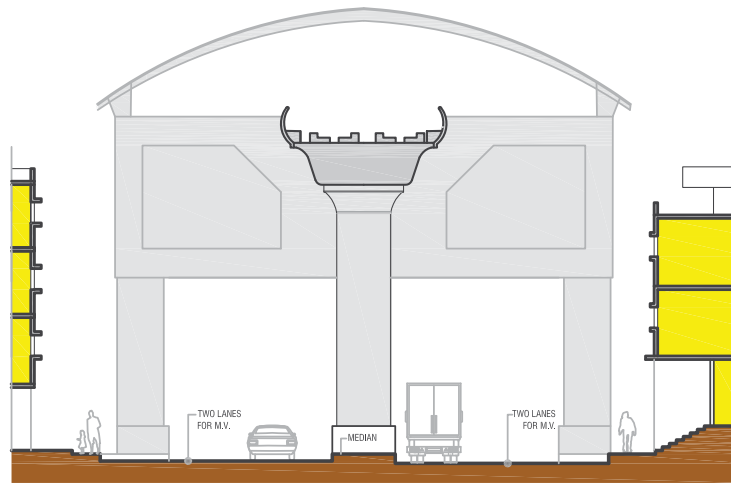
PHASE THREE - IMPLEMENTATION AFTER 10 YEARS (AFTER ALL CORRIDORS OF METRO IS COMPLETED)



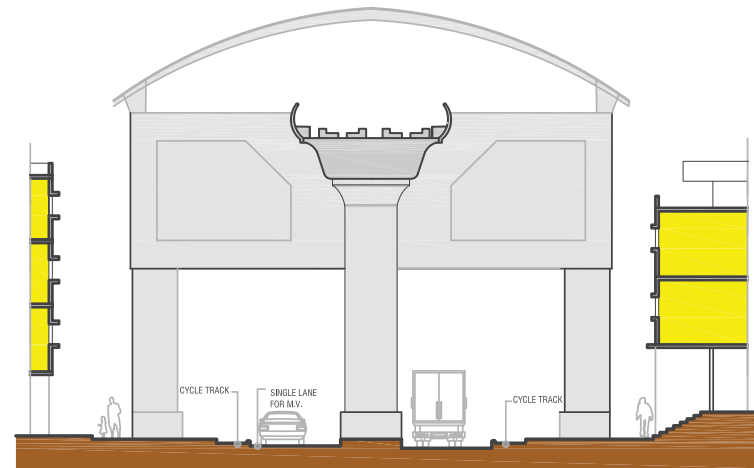
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» PROPOSALS

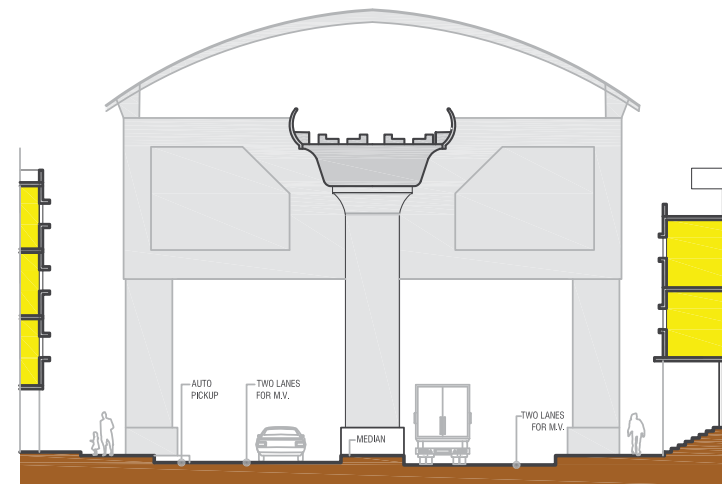
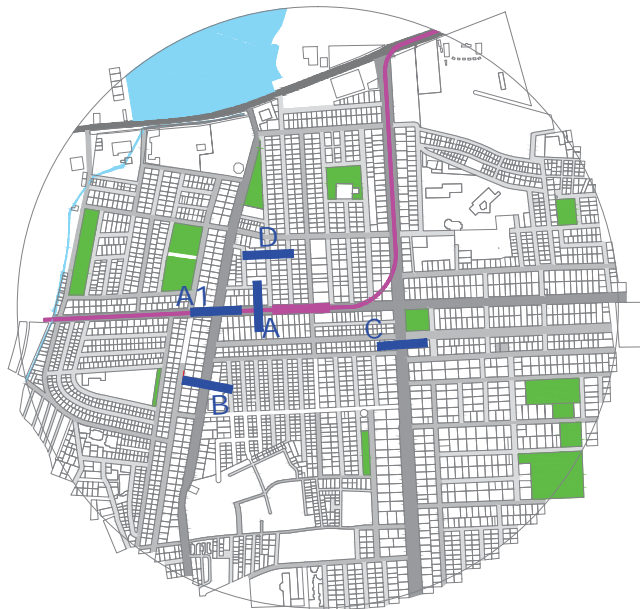
PROPOSED SECTIONS @ CMH ROAD



SECTION A  
EXISTING



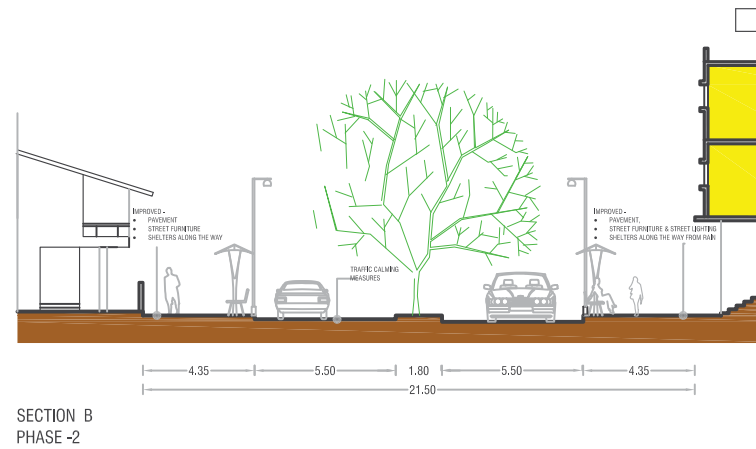
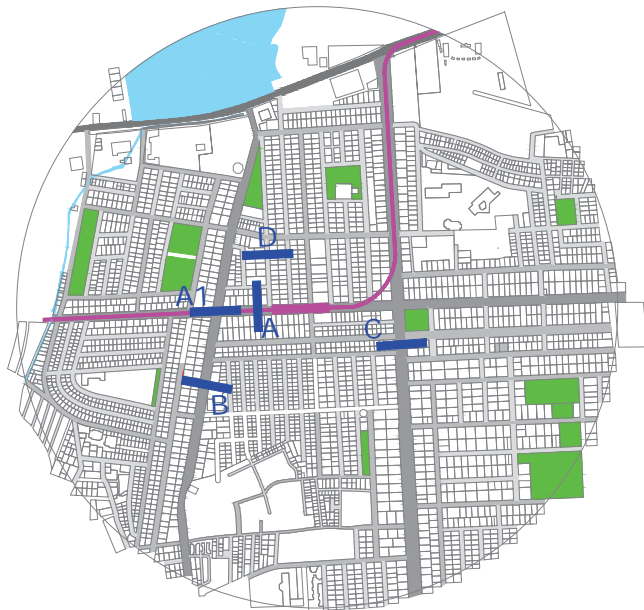
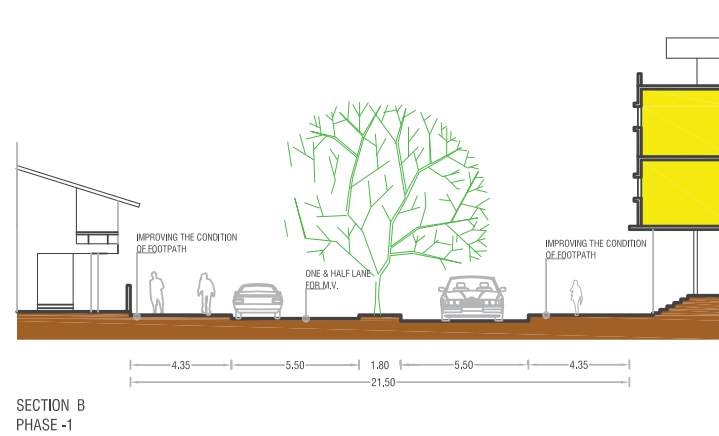
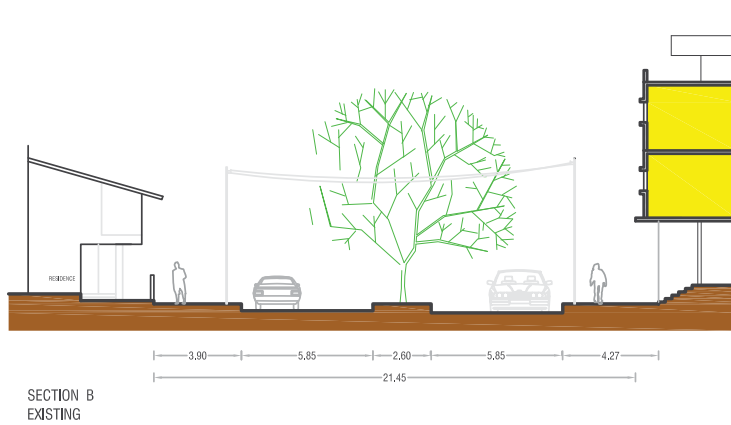
SECTION A  
PHASE - 3



SECTION A  
PHASE - 1

**>> PROPOSALS**

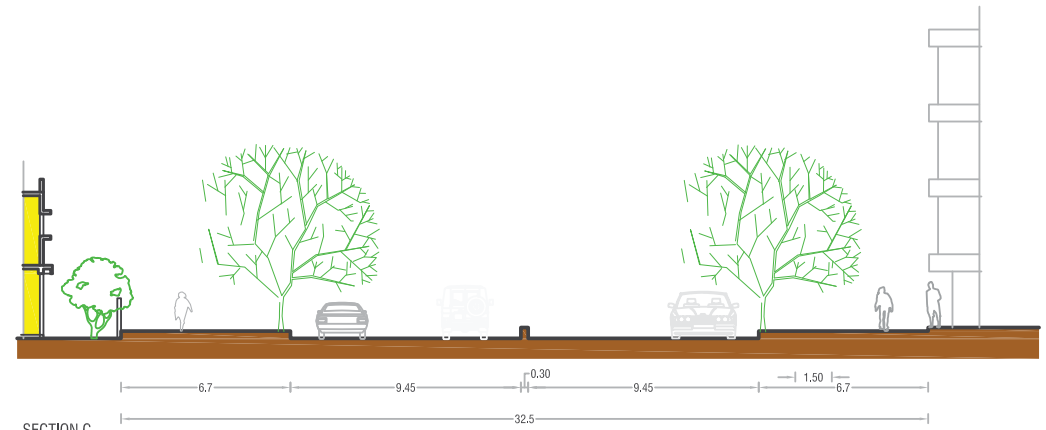
**PROPOSED SECTIONS @ INDIRANAGAR DOUBLE ROAD**



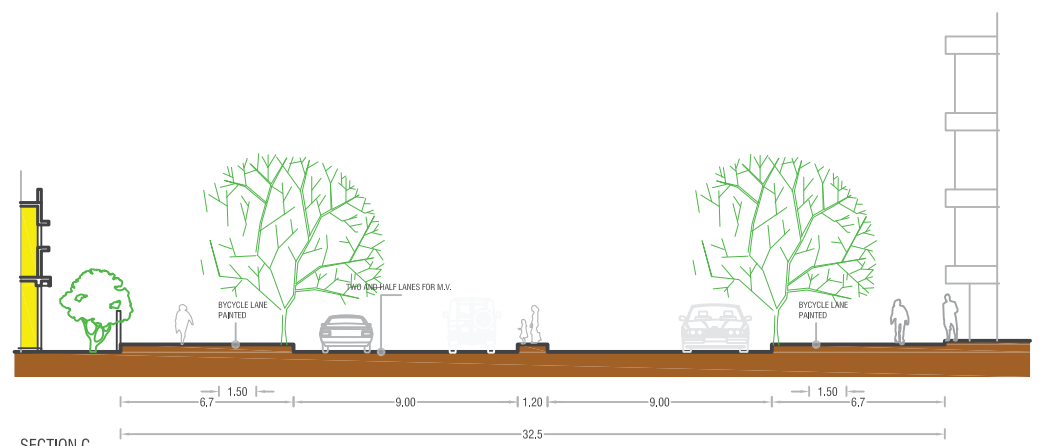
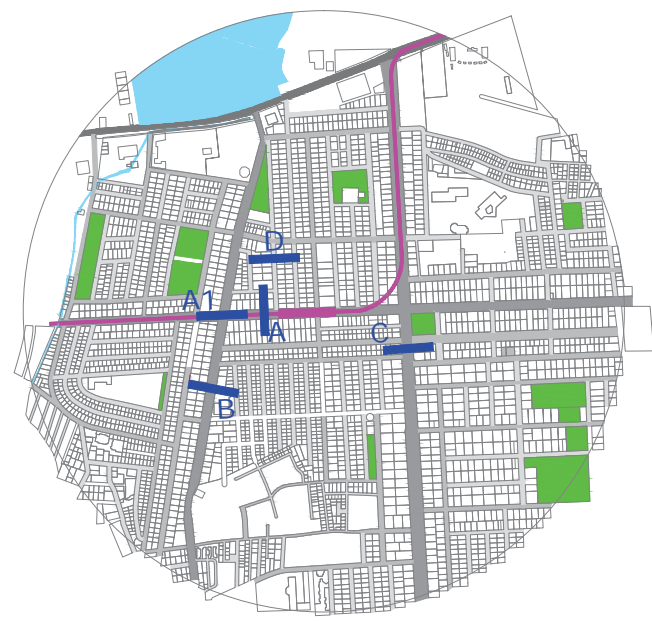
**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**>> PROPOSALS**

**PROPOSED SECTIONS @ INDIRANAGAR 100 FEET ROAD**



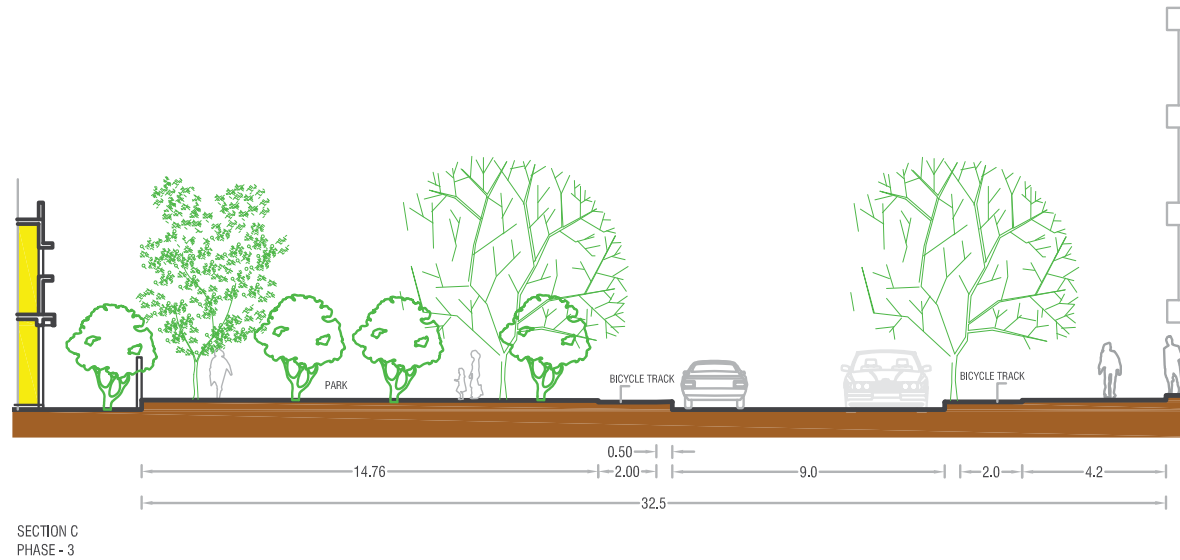
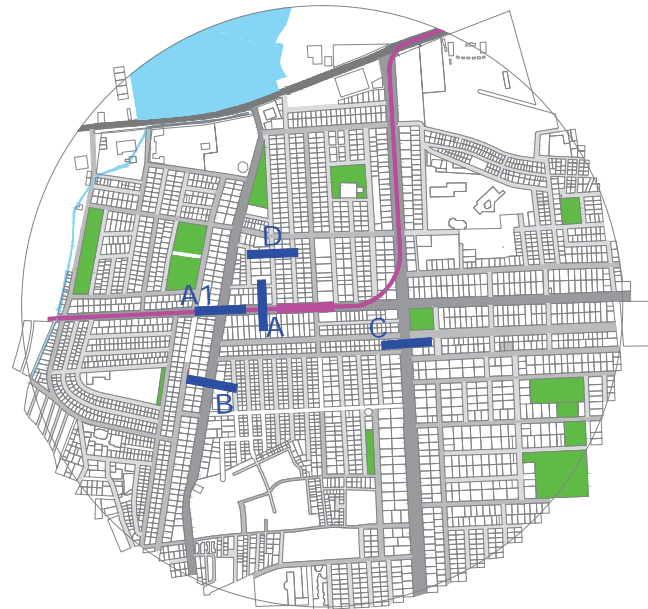
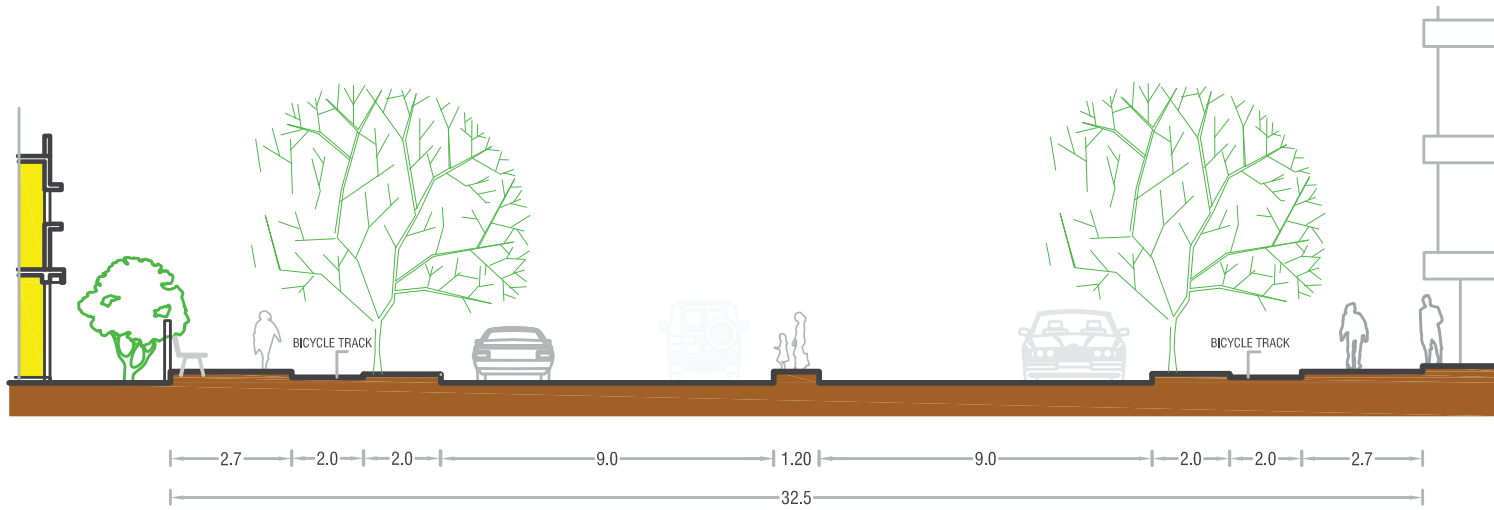
SECTION C  
EXISTING



SECTION C  
PHASE - 1

**>> PROPOSALS**

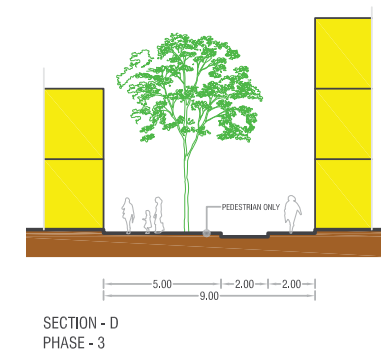
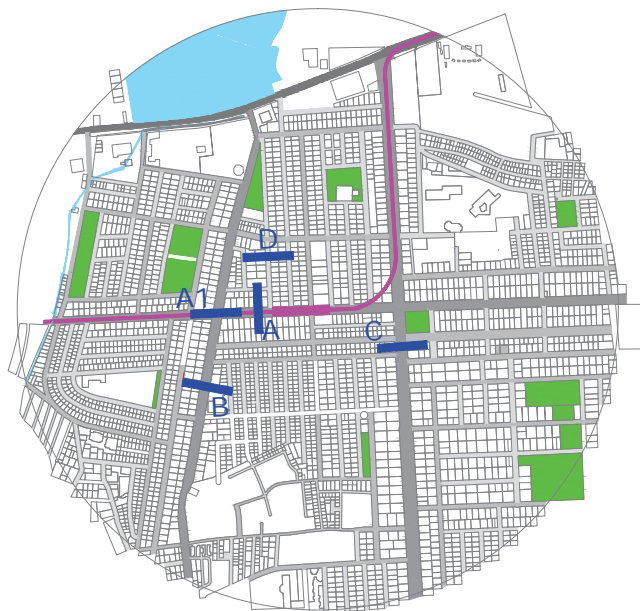
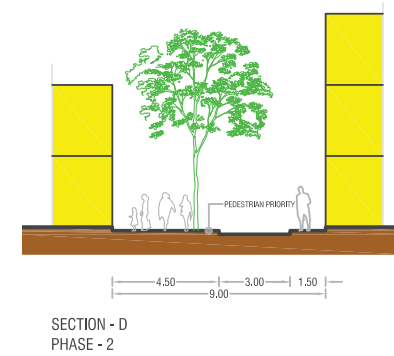
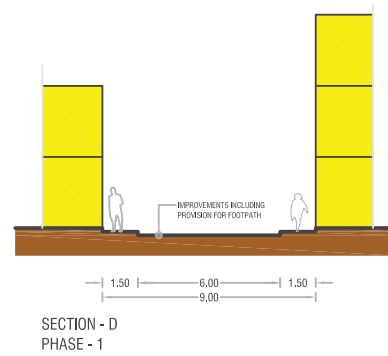
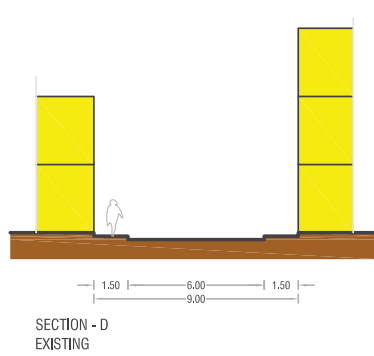
PROPOSED SECTIONS @ INDIRANAGAR 100 FEET ROAD



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**>> PROPOSALS**

**PROPOSED SECTIONS @ 9M PEDESTRIAN PRIORITY ROAD**



PROPOSALS

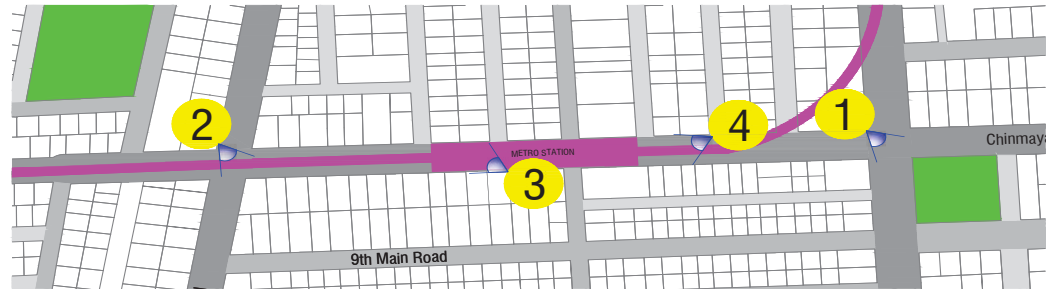
SNAP SHOTS OF CMH ROAD STRETCH BETWEEN DOUBLE ROAD AND 100 FEET ROAD INDIRANAGAR



Snap Shot 1



Snap Shot 2



Snap Shot 3

Snap Shot 4

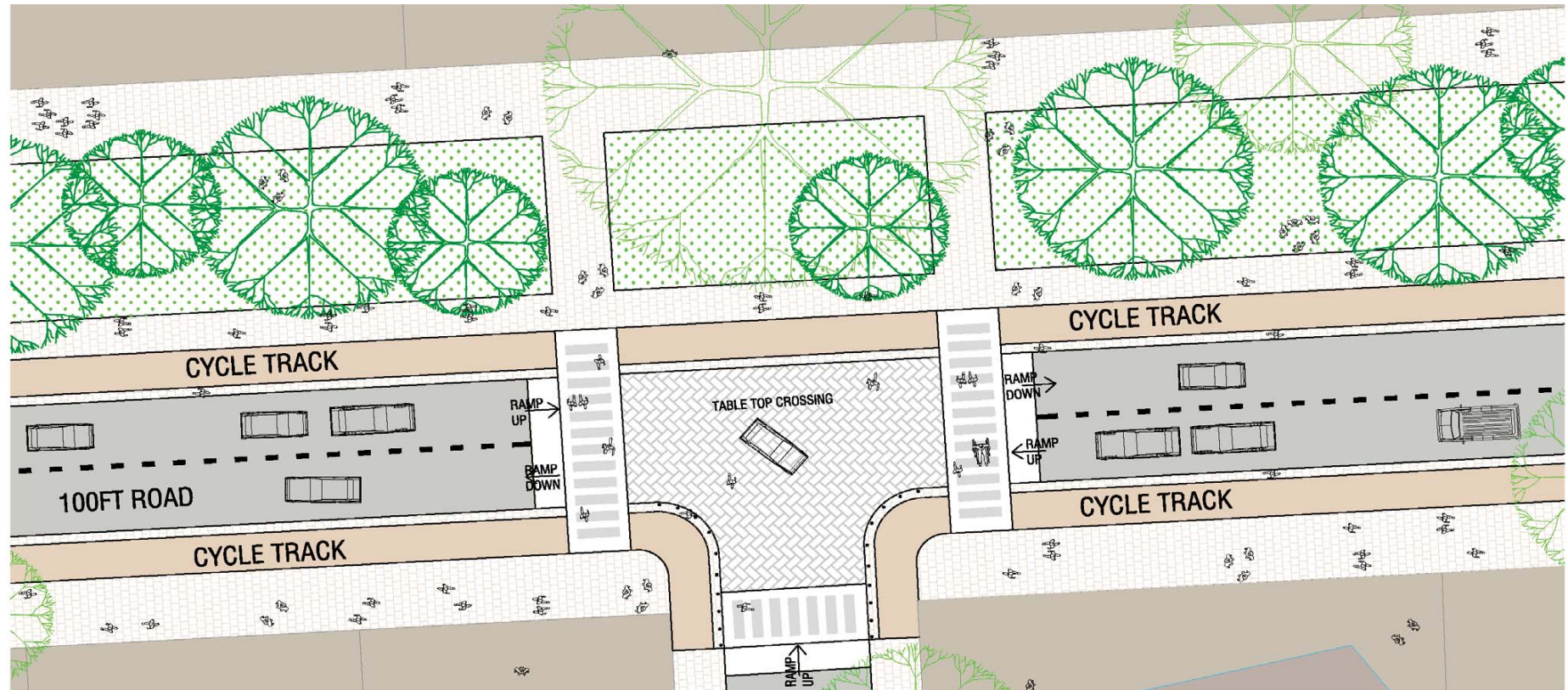




TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

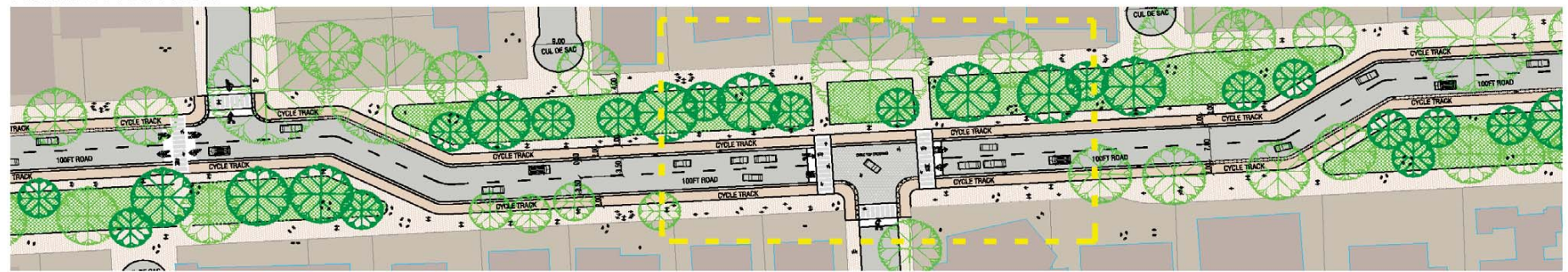
» PROPOSALS

PHASE THREE - PLAN OF INDIRANAGAR 100 FEET ROAD



Scenario 3 : 100ft Road

Scenario 3 : 100ft Road



**>> PROPOSALS**

**PHASE THREE - SNAP SHOTS OF INDIRANAGAR 100 FEET ROAD**



Snap Shot 1



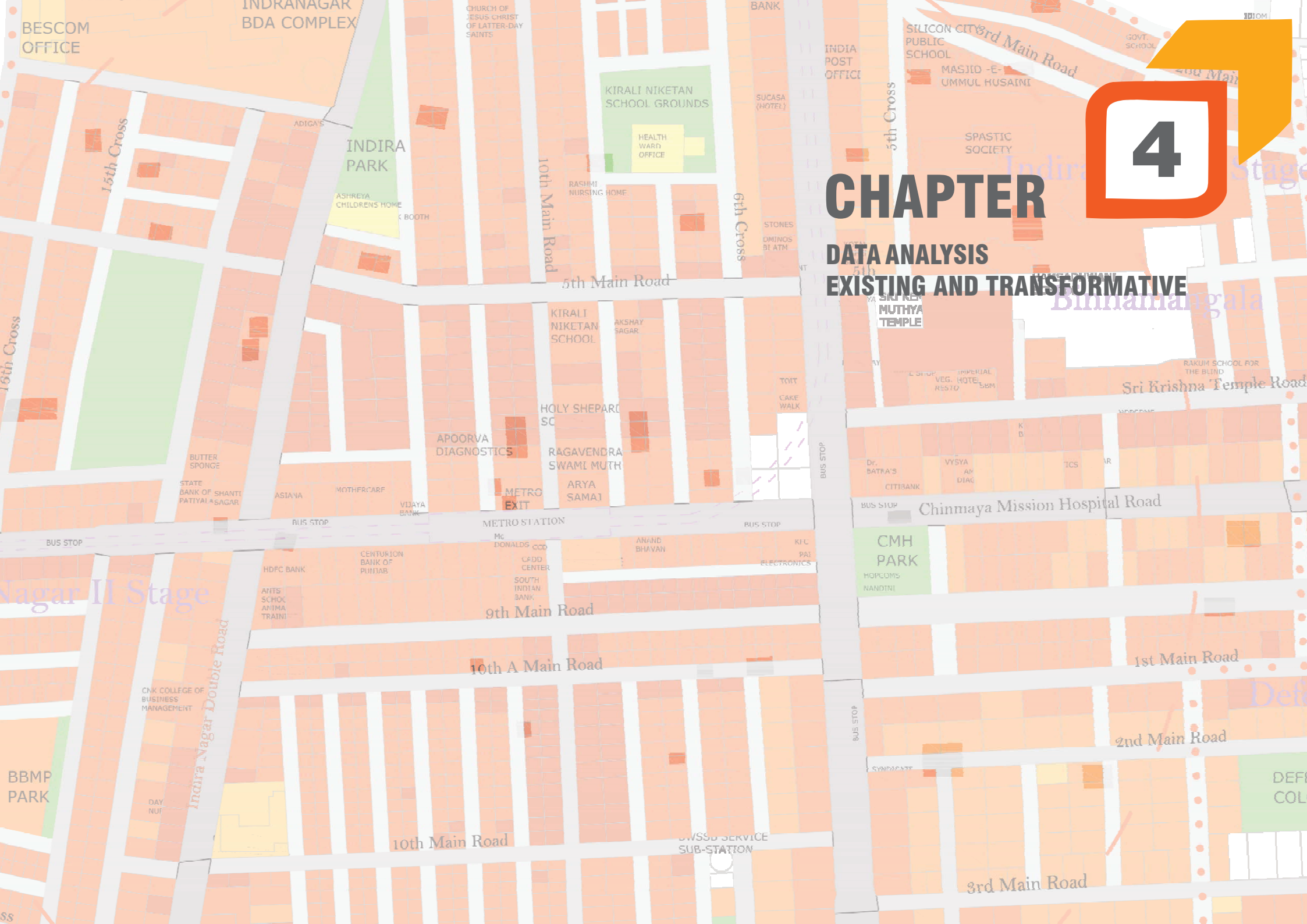
Snap Shot 2



Snap Shot 3

Snap Shot 4





# CHAPTER

## DATA ANALYSIS EXISTING AND TRANSFORMATIVE

**DATA ANALYSIS**

**STRUCTURE TO DATA ANALYSIS**

The analysis of the data collected from primary and secondary sources has broadly been divided into four categories namely - Physical, Institutional, Economic and Intangible.

The analysis methodology comprises two stages. The first stage of the analysis interprets the data collected and understands the inter-relationships between urban components in the 'existing context'. Once the existing context is understood the analysis then identifies the nature of relationship between urban components in the context of pedestrian networks / accessibility in an urban fabric.

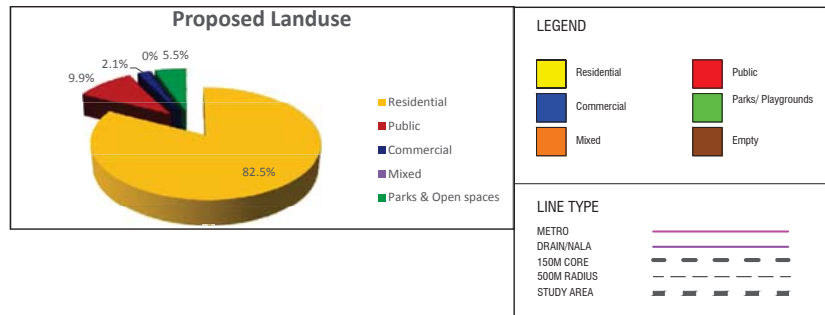
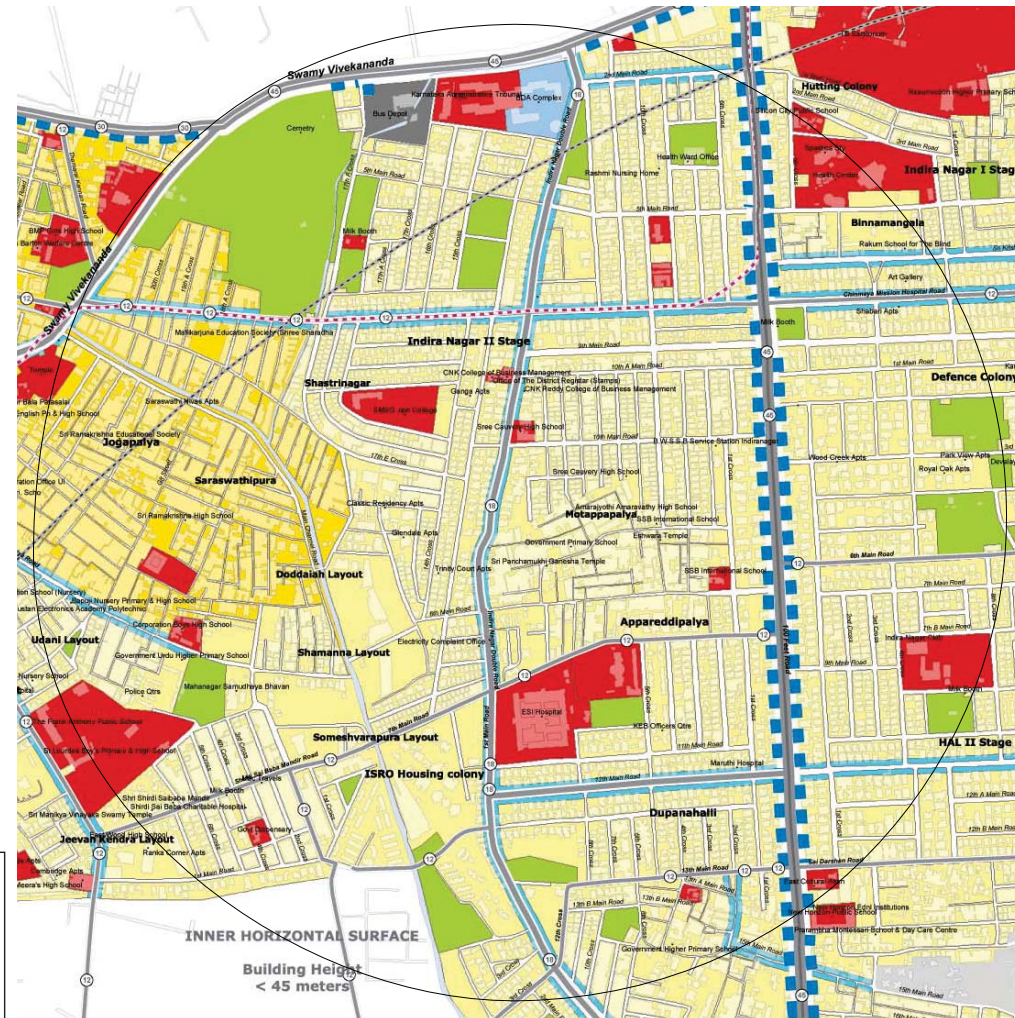
The second stage of the analysis which is known as the 'Transformative Analysis' identifies six triggers of transformation namely - access and proximity to metro station, land value, plot size, FAR achieved, land ownership and likelihood of land use change.

Each of these triggers are initially independently analyzed and eventually overlapped with the remaining triggers to get a composite analysis of the likelihood of transformation of individual properties.

The likelihood of transformation is based on a numeric scale of 1 - 5, with 1 being most unlikely to transform and 5 being most likely to transform. Each property is then assigned these numeric values based on the transformation triggers and in the composite transformation analysis the property with highest total sum of (which is the sum of numbers from each transformation triggers) is given a rating of 1 to 5 to conclude the composite transformative analysis.

The composite transformative analysis is then used as a base to arrive at scenarios for implementation which become part of the proposal.

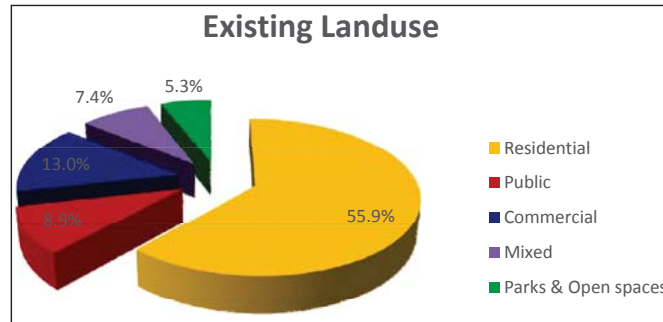
**EXISTING ANALYSIS - PROPOSED LAND USE AS PER CDP 2015**



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA ANALYSIS

EXISTING ANALYSIS - EXISTING LAND USE AS COMPARED TO CDP 2015



**LEGEND**

<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> Residential	<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span> Public
<span style="display:inline-block; width:15px; height:15px; background-color:blue; border:1px solid black;"></span> Commercial	<span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span> Parks/ Playgrounds
<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> Mixed	<span style="display:inline-block; width:15px; height:15px; background-color:brown; border:1px solid black;"></span> Empty

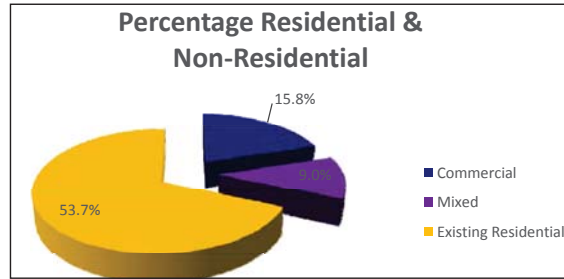
**LINE TYPE**

METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	



**>> DATA ANALYSIS**

**EXISTING ANALYSIS - LAND USE WITH GROUND FLOOR MIXED USE**



**LEGEND**

Commercial - OFFICE	Public
Commercial - SHOPS	Parks/ Playgrounds
Residential	Empty
Commercial	

**LINE TYPE**

METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	










TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA ANALYSIS

EXISTING ANALYSIS - LAND USE WITH FIRST FLOOR MIXED USE








**LEGEND**

 Commercial - OFFICE	 Public
 Commercial - SHOPS	 Parks/Playgrounds
 Residential	 Empty
 Commercial	

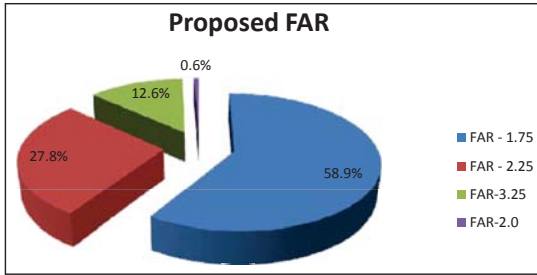
  

**LINE TYPE**

METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	

**>> DATA ANALYSIS**

EXISTING ANALYSIS - FLOOR AREA RATIO (FAR) AS PROPOSED BY CDP 2015



**LEGEND**

- FAR -1.75
- FAR -2
- FAR-2.25
- FAR 3.25
- Parks/ Playground

**LINE TYPE**

- METRO
- DRAIN/NALA
- 150M CORE
- 500M RADIUS
- STUDY AREA

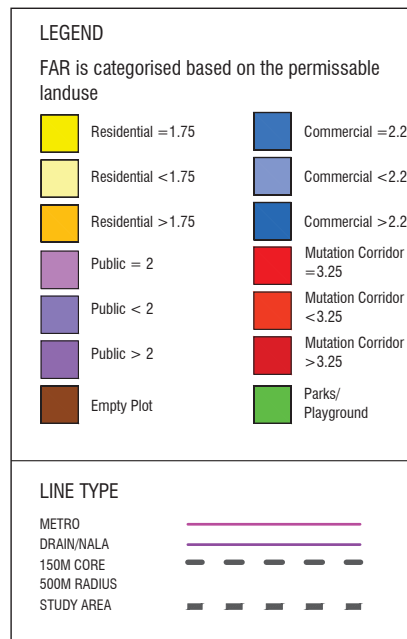
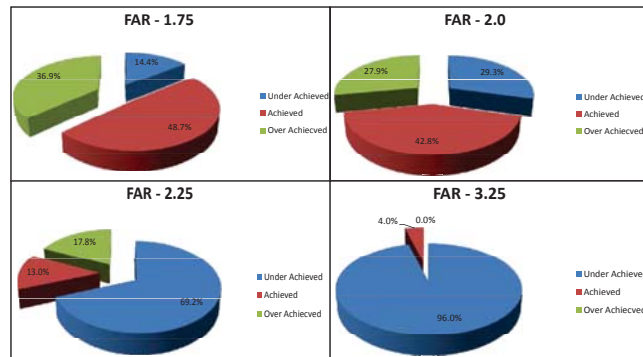




**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

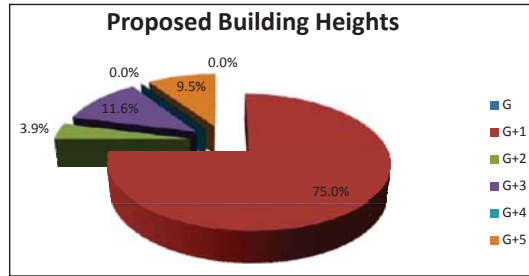
**DATA ANALYSIS**

**EXISTING ANALYSIS - FLOOR AREA RATIO (FAR) ACHIEVED PRESENTLY**



DATA ANALYSIS

EXISTING ANALYSIS - BUILDING HEIGHTS AS PROPOSED BY CDP 2015



**LEGEND**

- Ground +1
- Ground +2
- Ground +3
- Ground +5

**LINE TYPE**

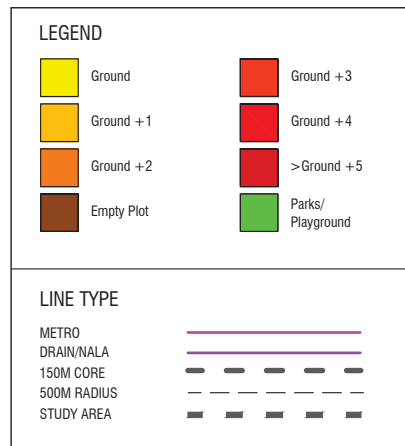
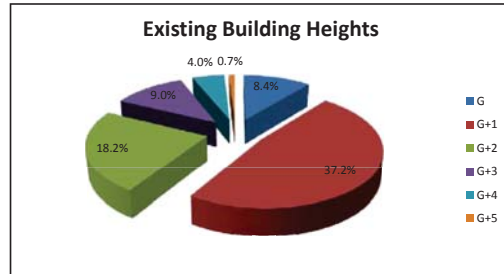
- METRO
- DRAIN/NALA
- 150M CORE
- 500M RADIUS
- STUDY AREA



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

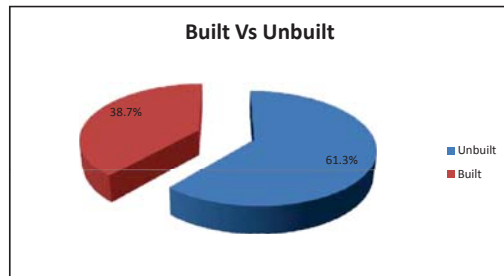
**>> DATA ANALYSIS**

**EXISTING ANALYSIS - BUILDING HEIGHTS ACHIEVED PRESENTLY**



**DATA ANALYSIS**

EXISTING ANALYSIS - FIGURE GROUND



**LEGEND**

- Built
- Unbuilt
- Road
- Water Body
- Parks/ Playgrounds

**LINE TYPE**

- METRO
- DRAIN/NALA
- 150M CORE
- 500M RADIUS
- STUDY AREA



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

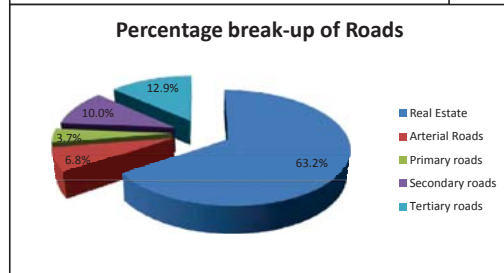
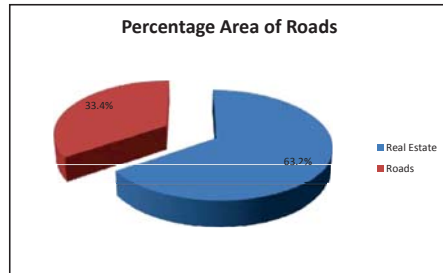
DATA ANALYSIS

EXISTING ANALYSIS - NATURAL FEATURES



DATA ANALYSIS

EXISTING ANALYSIS - ROAD HIERARCHY



**LEGEND**

- Arterial Roads
- Primary Roads
- Secondary
- Tertiary

**LINE TYPE**

- METRO
- DRAIN/NALA
- 150M CORE
- 500M RADIUS
- STUDY AREA



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

>> DATA ANALYSIS

EXISTING ANALYSIS - LEGIBILITY

LEGEND	
	Landmarks
	Parks / Playgrounds
	Node
	Public buildings
	Origin
	Destination
	District
LINE TYPE	
	Edge
	Path through the Main Roads
	Path through Pleasant roads
	Path through longer-insentived paths
	Path to the Metro Station
	METRO
	DRAIN/NALA
	150M CORE
	500M RADIUS
	STUDY AREA



**DATA ANALYSIS**

EXISTING ANALYSIS - ACTIVITIES AND GENERATORS

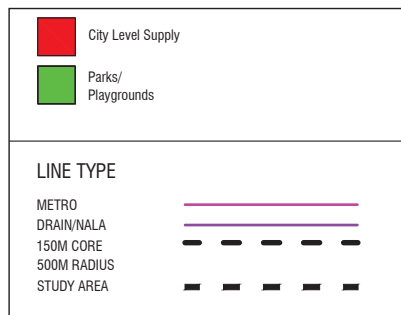




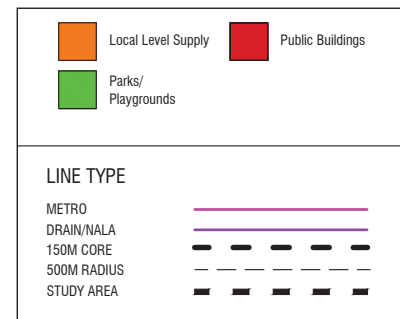
TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

» DATA ANALYSIS

EXISTING ANALYSIS - SUPPLY AND DEMAND DIAGRAM AT THE CITY LEVEL

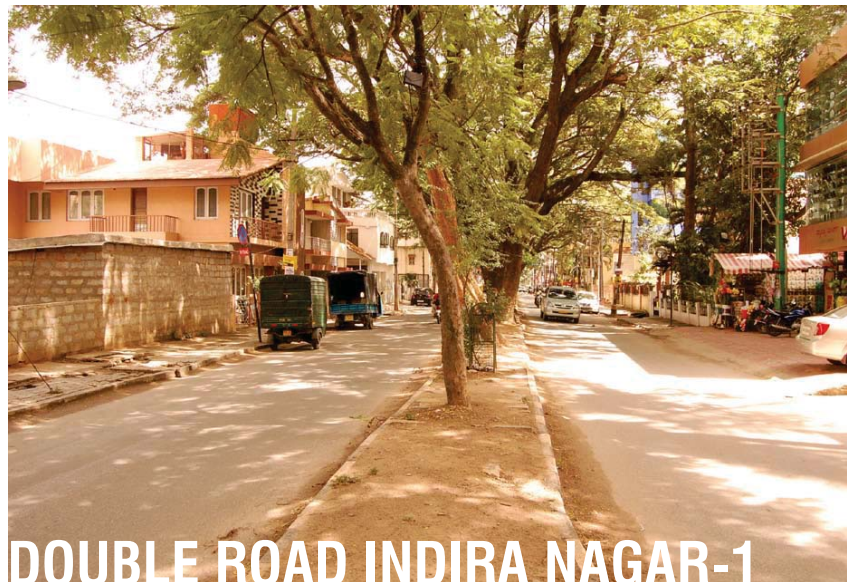


EXISTING ANALYSIS - SUPPLY AND DEMAND DIAGRAM AT THE PROJECT AREA LEVEL



» DATA ANALYSIS

EXISTING ANALYSIS - STREET RATING



**DOUBLE ROAD INDIRA NAGAR-1**

Begins at the Old Madras Road and ends at the CMH Road of Indiranagar.

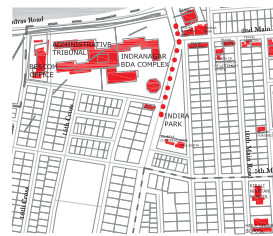
Locality: High- Middle Income residential Area

Traffic: Neighbourhood Level Traffic and some thorough fare as well. Carries traffic during the peak hours

Road Condition: Condition of road is fair.

Footpath:

- 4/5 **Path Provision:** Footpath is there for most of the road;
- 3/5 **Adequate width:** is there in most of the way **except in some places;**
- 2/5 **Surface Condition:** is bad for most of the road. **Lack of flat clean surface to walk on, unsafe in low-light conditions**

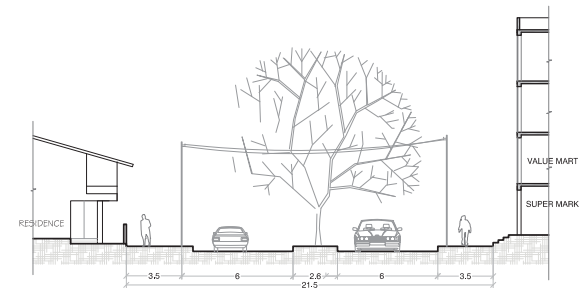


Crossing:

- 4/5 **Crossing Distance:** is NOT very high and there are medians for pedestrians to take shelter from traffic. **Except in some stretches the median is fenced off;**
- 4/5 **Waiting time and ease:** Low traffic volumes, so easy to cross **except in peak hours but no crossing aids (signals, zebra crossing etc)**

Building Interface:

- 3/5 **Interactive Frontage:** Residential plotted development, most buildings have insular compound wall but height of walls less than 4' allowing transparency and sense of security;
- 4/5 **Business Spill-out:** Very few business outlets along this road, so walking environment is un-obstructed;



Obstacles:

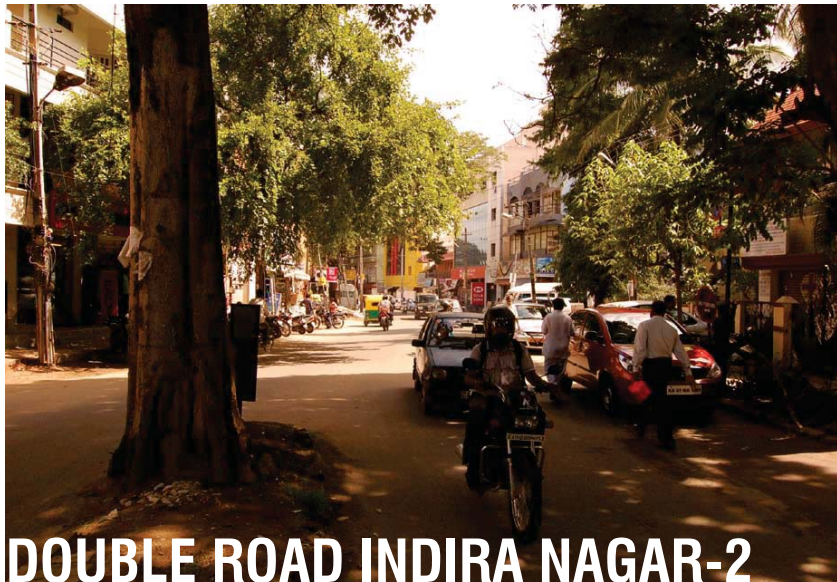
- 3/5 **Trees and Sign Boards:** there are obstructions in terms of trees, poles, sign-boards and informal sector;
- 5/5 **Parking:** no obstruction from parking on the pavement;



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**» DATA ANALYSIS**

**EXISTING ANALYSIS - STREET RATING**



**DOUBLE ROAD INDIRA NAGAR-2**

Begins at the CMH Road and ends at the 7th Main Road of Indiranagar.

Locality: High Middle to Middle Income residential Area

Traffic: Neighbourhood Level Traffic and some through fare as well. Carries some traffic during the peak hours

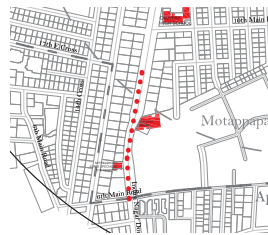
Road Condition: Condition of road is fair.

Footpath:

3/5 **Path Provision:** Footpath is present for more than half of the road;

3/5 **Adequate width:** is there in some places on the stretch, **not present in some places near CMH Road** ;

2/5 **Surface Condition:** is bad for most of the road. **Lack of flat clean surface to walk on, unsafe in low-light conditions**



Crossing:

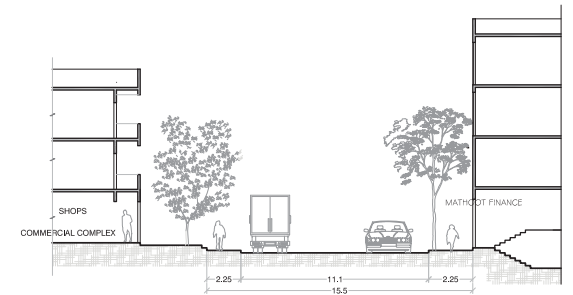
4/5 **Crossing Distance:** is NOT very high and there are medians for pedestrians to take shelter from traffic. **Except in some stretches there is No median;**

3/5 **Waiting time and ease:** Low traffic volumes, so easy to cross **except in peak hours but no crossing aids (signals, zebra crossing etc)**

Building Interface:

4/5 **Interactive Frontage:** largely commercial frontage, there is sense of security;

2/5 **Business Spill-out:** Many business outlets along this road, so walking environment obstructed at many places;



Obstacles:

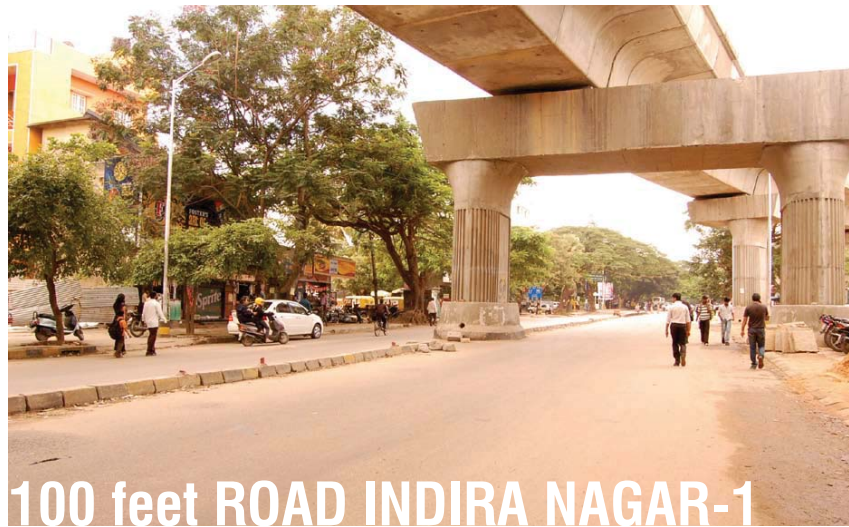
1/5 **Trees and Sign Boards:** there are obstructions in terms of trees, poles, sign-boards and informal sector;

1/5 **Parking:** there is obstruction from parking on the pavement;



DATA ANALYSIS

EXISTING ANALYSIS - STREET RATING



Begins at the Old Madras Road and ends at the CMH Road of Indiranagar.

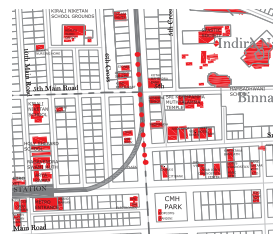
Locality: High Income residential Area and Retail Commercial District with small Slum Area abutting it

Traffic: City Level Arterial Traffic and many thorough fare as well. Carries Heavy traffic during the peak hours

Road Condition: Condition of road is fair.

Footpath:

- 5/5 **Path Provision:** Footpath is present for the whole road;
- 3/5 **Adequate width:** is there all along the stretch;
- 3/5 **Surface Condition:** is bad for part of the stretch. Lack of flat clean surface to walk on, unsafe in low-light conditions



Crossing:

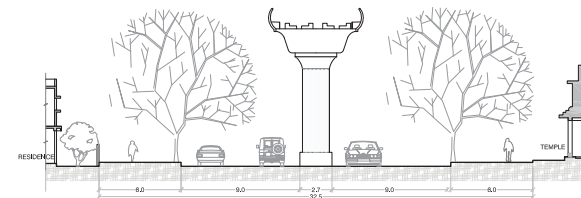
1/5 **Crossing Distance:** is very high and there are no medians for pedestrians to take shelter from traffic;

3/5 **Waiting time and ease:** High traffic volumes, so difficult to cross except in peak hours but no crossing aids (signals, zebra crossing etc)

Building Interface:

4/5 **Interactive Frontage:** largely commercial frontage, there is sense of security;

3/5 **Business Spill-out:** Business outlets along this stretch, so walking environment is obstructed at many places;



Obstacles:

2/5 **Trees and Sign Boards:** there are obstructions in many parts of this stretch in terms of trees, poles, transformers, sign-boards and informal sector;

3/5 **Parking:** there is obstruction from parking in some parts along this stretch;



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

» DATA ANALYSIS

EXISTING ANALYSIS - STREET RATING



Begins at the CMH Road and ends at the 7th Main Road of Indiranagar.

Locality: High Income residential Area and Retail Commercial District

Traffic: City Level Arterial Traffic and many thorough fare as well. Carries Heavy traffic during the peak hours

Road Condition: Condition of road is Good

Footpath:

5/5 **Path Provision**: Footpath is present for the whole road;

5/5 **Adequate width**: is there all along the stretch;

3/5 **Surface Condition**: is Fair for the stretch. There is Lack of flat clean surface to walk on, unsafe in low-light conditions



Crossing:

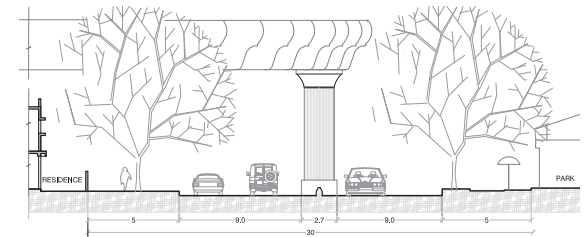
1/5 **Crossing Distance**: is very high and there are no medians for pedestrians to take shelter from traffic;

2/5 **Waiting time and ease**: High traffic volumes, so difficult to cross especially in peak hours and no crossing aids (signals, zebra crossing etc)

Building Interface:

4/5 **Interactive Frontage**: largely commercial frontage, there is sense of security;

4/5 **Business Spill-out**: Not Much-Business spill-out on the pavement along this stretch, so walking environment is Not obstructed;



Obstacles:

3/5 **Trees and Sign Boards**: there are few obstructions on this stretch in terms of trees, poles, , sign-boards;

3/5 **Parking**: there is obstruction from parking in some parts along this stretch;



**DATA ANALYSIS**

**EXISTING ANALYSIS - STREET RATING**



Begins at the 80' Road and ends at the 100' feet Road of Indiranagar.

Locality: High Income residential Area and Mixed Use area

Traffic: Local Level Arterial Traffic and many through fare as well.

Road Condition: Condition of road is Good

Footpath:

4/5 **Path Provision**: Footpath is present for the whole road;  
5/5 **Adequate width**: is there all along the stretch;  
3/5 **Surface Condition**: is Fair for the stretch. **There is Lack of flat clean surface to walk on, unsafe in low-light conditions**



Crossing:

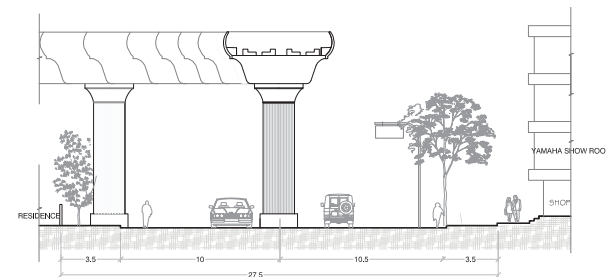
3/5 **Crossing Distance**: is high and and there are no medians for pedestrians to take shelter from traffic;

2/5 **Waiting time and ease**: Low traffic volumes, so easy to cross **except in peak hours but no crossing aids (signals, zebra crossing etc)**

Building Interface:

4/5 **Interactive Frontage**: largely commercial frontage, there is sense of security;

3/5 **Business Spill-out**: there is Business spill-out on the pavement along this stretch, so walking environment is obstructed;



Obstacles:

1/5 **Trees and Sign Boards**: **there are few obstructions on this stretch in terms of trees, poles, , sign-boards and informal sector;**

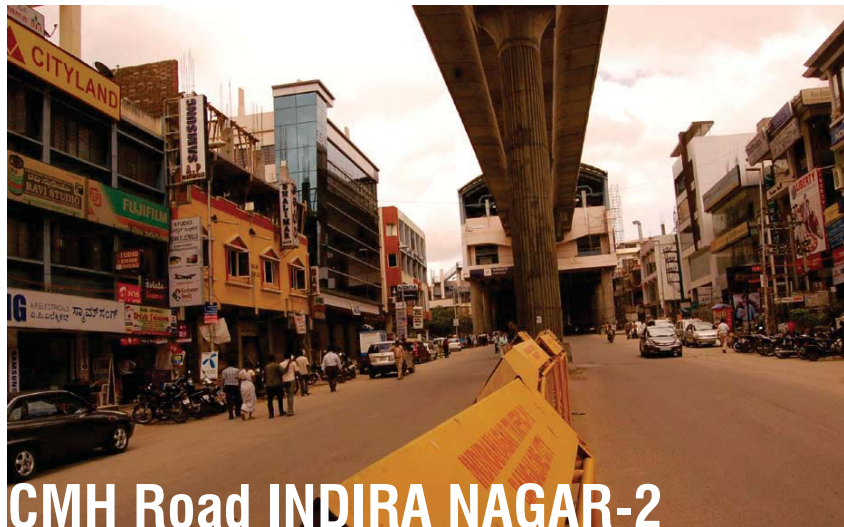
3/5 **Parking**: there is obstruction from parking in some parts along this stretch;



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

» DATA ANALYSIS

EXISTING ANALYSIS - STREET RATING



CMH Road INDIRA NAGAR-2

Begins at the 100' Road and ends at the Double Road of Indiranagar.

Locality: Retail commercial area

Traffic: City Level Arterial Traffic and many thorough fare as well. Carries Heavy traffic during the peak hours

Road Condition: Condition of road is Good

Footpath:

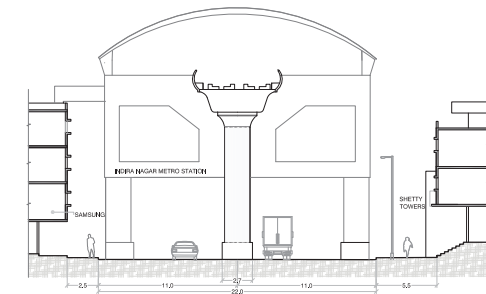
3/5 **Path Provision**: Footpath is present for most of the stretch;  
 5/5 **Adequate width**: is there for most parts of the stretch except near the 100' road;  
 3/5 **Surface Condition**: is good for most of the stretch. There is Lack of flat clean surface to walk only in a small stretch near the 100' road.



Crossing:  
 3/5 **Crossing Distance**: is low but there are no medians for pedestrians to take shelter from traffic;

2/5 **Waiting time and ease**: High traffic volumes, Not easy to cross especially in peak hours but no crossing aids (signals, zebra crossing etc)

Building Interface:  
 4/5 **Interactive Frontage**: largely commercial frontage, there is sense of security;  
 3/5 **Business Spill-out**: there is Business spill-out on the pavement along this stretch, so walking environment is obstructed;



Obstacles:  
 2/5 **Trees and Sign Boards**: there are few obstructions on this stretch in terms of trees, poles, sign-boards, informal sector and the columns of the Metro Station itself;  
 2/5 **Parking**: there is obstruction from parking in most parts along this stretch;



**>> DATA ANALYSIS**

**EXISTING ANALYSIS - STREET RATING**



**CMH Road INDIRA NAGAR-3**

Begins at the Double Road and ends at the 17th Cross Road of Indiranagar.

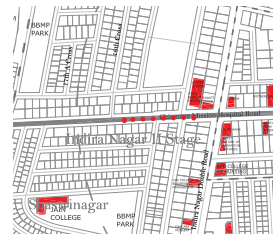
Locality: Mixed use area

Traffic: City Level Arterial Traffic and many thorough fare as well. Carries Heavy traffic during the peak hours

Road Condition: Condition of road is Good

Footpath:

3/5 **Path Provision**: Footpath is present for most of the stretch;  
2/5 **Adequate width**: is Not there for most parts of the stretch, Space varies from 6' to less than 3';  
2/5 **Surface Condition**: is good for most of the stretch. **There is Lack of flat clean surface to walk**;



Crossing:

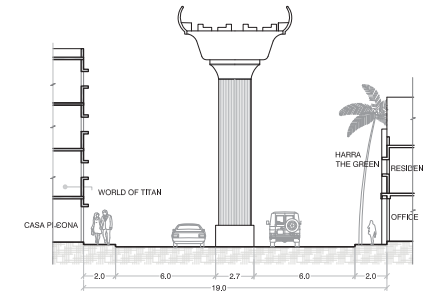
3/5 **Crossing Distance**: is low but there are no medians for pedestrians to take shelter from traffic;

2/5 **Waiting time and ease**: High traffic volumes, Not easy to cross especially in peak hours but no crossing aids (signals, zebra crossing etc)

Building Interface:

4/5 **Interactive Frontage**: largely commercial frontage, there is sense of security;

1/5 **Business Spill-out**: there is Business spill-out on the pavement along this stretch, so walking environment is heavily obstructed;



Obstacles:

1/5 **Trees and Sign Boards**: there are few obstructions on this stretch in terms of trees, poles, sign-boards and informal sector;

1/5 **Parking**: there is heavy obstruction from parking along this stretch;







**>> DATA ANALYSIS**

**TRANSFORMATIVE ANALYSIS - TRIGGER (ACCESS AND PROXIMITY TO METRO STATION)**

The transformative analysis for Proximity and Access to Metro Station (Trigger) has yielded the following points of inference:

- All edges along CMH Road, 100 Feet Road and Double Road are likely to transform
- Interior areas of all Sectors away from the Metro station and not adjoining a major road are unlikely to transform
- Sector N2 is highly likely and likely to transform up till 5th Main Road
- Sector N3 is highly and likely to transform up till Sri Krishna Temple Road along CMH Road



LEGEND	
<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span>	1 Least Likely
<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span>	2
<span style="display:inline-block; width:15px; height:15px; background-color:lightcoral; border:1px solid black;"></span>	3 Likely
<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span>	4
<span style="display:inline-block; width:15px; height:15px; background-color:darkred; border:1px solid black;"></span>	5 Most Likely
<span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span>	Parks/ Playground

LINE TYPE	
METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA ANALYSIS

TRANSFORMATIVE ANALYSIS - TRIGGER (LAND VALUE)

The transformative analysis for Land Value (Trigger) has yielded the following points of inference:

- All edges along CMH Road in Sectors N2 and S2 are unlikely to change based on current real estate value. This edge has already transformed and therefore the room for further transformation based on land value is limited.
- Sector S3 is the most unlikely to transform based on the high real estate value of the residential plots.
- Interior areas of Sectors N1, S1, N2, S2 and N3 are likely to transform based on the relatively lower real estate prices in those sectors.
- Mottapanapalya and Appareddypalya are highly likely to transform based on the very low estate value

LEGEND	
	1 Least Likely
	2
	3 Likely
	4
	5 Most Likely
	Parks/ Playground

LINE TYPE	
METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	



**DATA ANALYSIS**

**TRANSFORMATIVE ANALYSIS - TRIGGER (PLOT SIZE)**

The transformative analysis for Plot Size (Trigger) has yielded the following points of inference:

- All plots of smaller sizes (less than 350 Sqm in area) in all Sectors are the most likely to change.
- Sector N2 and S2 are highly likely to transform due to the lot sizes and amalgamation of plots due to smaller lot sizes
- Sector S3 (Color Yellow) is unlikely to transform to the large plot sizes and less likelihood of amalgamation
- The informal squatter settlement located at the North of Sector N3 is highly likely to transform due to informal nature of the settlement and illegal tenure rights.
- Mottapanapalya located at the South end of Sector S2 is highly likely to transform due to likelihood of amalgamation of smaller lots.
- Areas colored in Yellow in all Sectors N1, N2 and N3 are Government and Hospital properties and are unlikely to transform.



LEGEND	
<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span>	1 Least Likely
<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span>	2
<span style="display:inline-block; width:15px; height:15px; background-color:darkorange; border:1px solid black;"></span>	3 Likely
<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span>	4
<span style="display:inline-block; width:15px; height:15px; background-color:darkred; border:1px solid black;"></span>	5 Most Likely
<span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span>	Parks/ Playground

LINE TYPE	
METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	

**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**DATA ANALYSIS**

**TRANSFORMATIVE ANALYSIS - TRIGGER (FAR ACHIEVED)**

The transformative analysis for FAR Achieved (Trigger) has yielded the following points of inference:

- Both edges of Indiranagar 100 Feet road is highly likely to transform based on the current under-achieved FAR.
- Indiranagar BDA Complex located in the North of Sector N1 is likely to transform based on under-achieved FAR.
- Sectors N2 and S2 are likely to transform based on partially under-achieved FAR
- Remaining Sectors have a mix of under-achieved and completely achieved FAR.
- Mottapanapalya is likely to transform based on the partially under achieved FAR.



LEGEND	
	1 Least Likely
	2
	3 Likely
	4
	5 Most Likely
	Parks/ Playground
LINE TYPE	
METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	



**>>> DATA ANALYSIS**

**TRANSFORMATIVE ANALYSIS - TRIGGER (LAND OWNERSHIP)**

The transformative analysis for Land Ownership (Trigger) has yielded the following points of inference:

- Properties in all Sectors owned by private owners are likely to transform
- Institutional properties (hospitals in Sector N3) are likely to transform by sub-parcelization of land parcels.
- Properties owned by Schools in Sector S1 and BDA Complex in Sector N1 are unlikely to transform due to the nature of ownership.
- Mottapanapalya in Sector S2 is highly likely to transform based on the likelihood of amalgamation of properties



LEGEND	
<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span>	1 Least Likely
<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span>	2
<span style="display:inline-block; width:15px; height:15px; background-color:lightcoral; border:1px solid black;"></span>	3 Likely
<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span>	4
<span style="display:inline-block; width:15px; height:15px; background-color:darkred; border:1px solid black;"></span>	5 Most Likely
<span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span>	Parks/ Playground

LINE TYPE	
METRO	<span style="display:inline-block; width:30px; border-bottom:2px solid purple;"></span>
DRAIN/NALA	<span style="display:inline-block; width:30px; border-bottom:2px solid blue;"></span>
150M CORE	<span style="display:inline-block; width:30px; border-bottom:2px dashed red;"></span>
500M RADIUS	<span style="display:inline-block; width:30px; border-bottom:2px dashed black;"></span>
STUDY AREA	<span style="display:inline-block; width:30px; border-bottom:2px dashed red;"></span>



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**>> DATA ANALYSIS**

**TRANSFORMATIVE ANALYSIS - TRIGGER (LIKELYHOOD OF LAND USE CHANGE- RESIDENTIAL TO COMMERCIAL)**

The transformative analysis for Likelihood of Land Use Change (Trigger) has yielded the following points of inference:

- Residential properties in Sectors N1, N2, N3 and S3 are unlikely to change to transform from residential land use to non-residential land use based on availing additional FAR for the given size of plots and road width.
- Mottapanapalya in Sector S2 and Indiranagar BDA Complex located in Sector N1 is unlikely to transform.
- Both edges of CMH Road in the project area are unlikely to transform further from its already transformed state.
- Interior areas of Sectors S1 and S2 are very likely to transform due to the availability of additional FAR by changing land use from residential to non-residential and road width.



LEGEND	
	1 Least Likely
	2
	3 Likely
	4
	5 Most Likely
	Parks/ Playground
LINE TYPE	
METRO	
DRAIN/NALA	
150M CORE	
500M RADIUS	
STUDY AREA	



**>> DATA ANALYSIS**

**COMPOSITE TRANSFORMATIVE ANALYSIS - ALL TRIGGERS (LIKELIHOOD OF TRANSFORMATION)**

The transformative analysis for Composite Triggers (All Triggers) has yielded the following points of inference:

- Properties in Sector N2 between CMH Road and 5th Main Road are highly likely to transform based on its porosity to CMH Road and the combined influence of all triggers.
- Properties on Sri Krishna Temple Road in Sector N3 are very likely to transform based on its proximity and connection to both CMH Road and 100 Feet Road and the combined effect of all triggers.
- Properties in Sector N1 and remaining properties in Sector N3 and S2 are likely to transform.
- Both edges of Indiranagar 100 Feet Road are likely to transform based on the current growth trends and the combined effect of all triggers.
- Properties in Sector S3 are unlikely to transform.



LEGEND	
<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span>	1 Least Likely
<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span>	2
<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span>	3 Likely
<span style="display:inline-block; width:15px; height:15px; background-color:darkred; border:1px solid black;"></span>	4
<span style="display:inline-block; width:15px; height:15px; background-color:darkred; border:1px solid black;"></span>	5 Most Likely
<span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span>	Parks/ Playground

LINE TYPE	
METRO	<span style="display:inline-block; width:20px; border-bottom:2px solid purple;"></span>
DRAIN/NALA	<span style="display:inline-block; width:20px; border-bottom:2px solid blue;"></span>
150M CORE	<span style="display:inline-block; width:20px; border-bottom:2px dashed red;"></span>
500M RADIUS	<span style="display:inline-block; width:20px; border-bottom:2px dashed black;"></span>
STUDY AREA	<span style="display:inline-block; width:20px; border-bottom:2px dashed red;"></span>

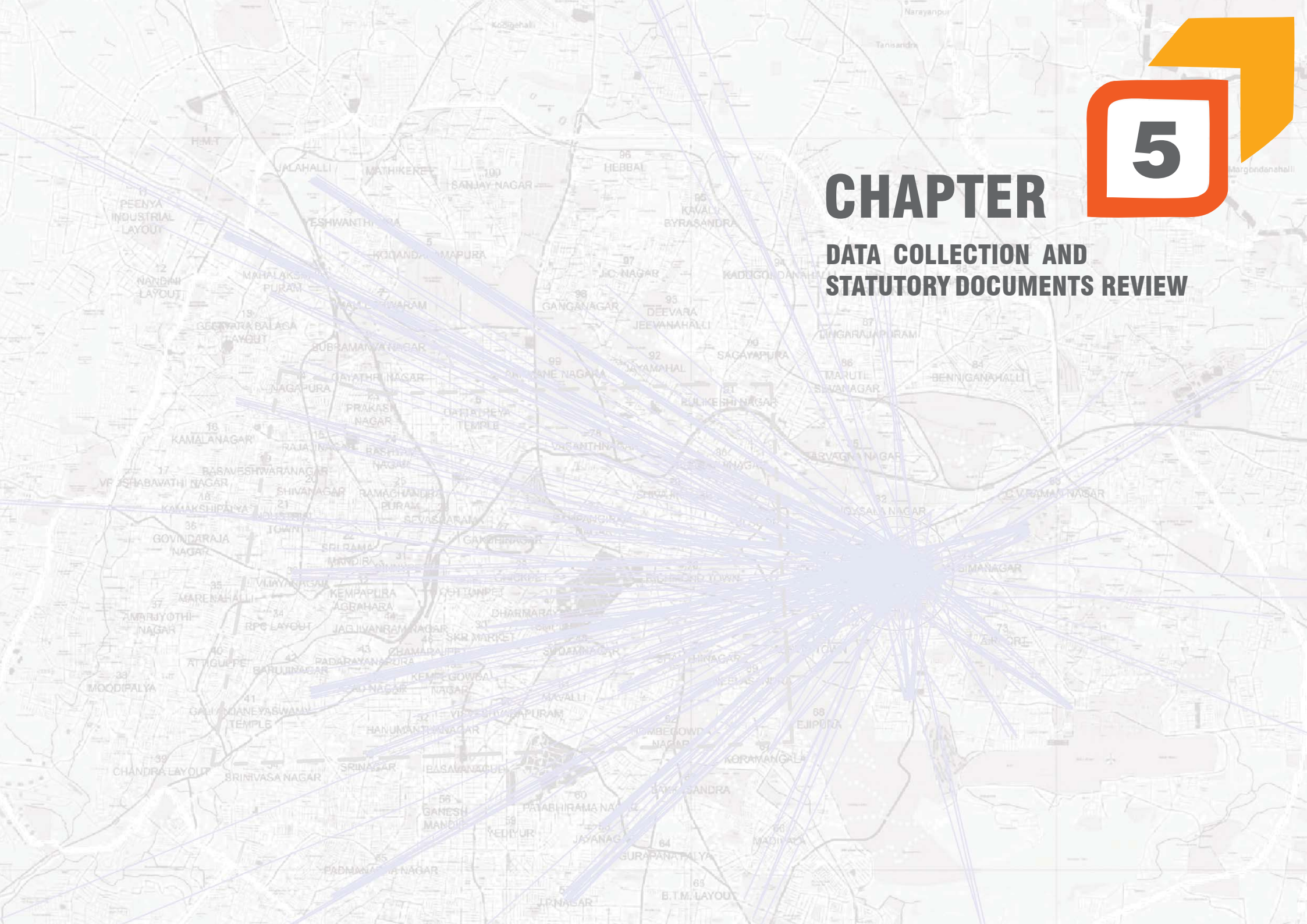






# CHAPTER

## DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW



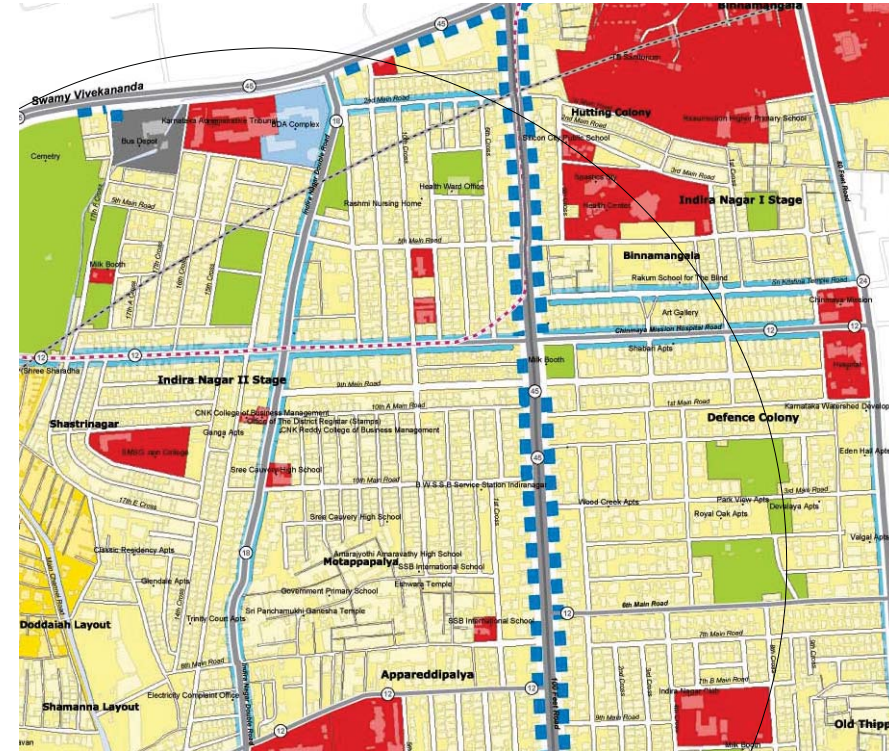
**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**  
COMPREHENSIVE DEVELOPMENT PLAN AND REVISED MASTER PLAN - LAND USE



Land Use map showing the project area as indicated in the CDP 1995-2011  
Source: Sky Group

The following is a summary of data collected from reviewing the 1995 - 2011 Comprehensive Development Plan (CDP) for Bangalore.

- Land Use
- Commercial Axis
- Proposed road widths
- Building heights
- Set-backs
- Floor Area Ratio
- Open Spaces



Land Use map showing the project area as indicated in the RMP 2005-2015  
Source: Sky Group

The following is a summary of data collected from reviewing the 2005 - 2015 Revised Master Plan for Bangalore.

- Land Use
- Commercial Axis
- Proposed road widths
- Building heights
- Set-backs
- Floor Area Ratio
- Mutation Corridors
- Open Spaces



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**COMPREHENSIVE DEVELOPMENT PLAN 2015 - EXISTING AND PROPOSED FLOOR AREA RATIO (FAR)**



Existing FAR map of the project area as indicated in the CDP 2015  
Source: Sky Group



Proposed FAR of the project area as indicated in the CDP 2015  
Source: Sky Group

LAND USE	PLOT SIZE(SQM)	GROUND COVERAGE (MAX)	FAR	ROAD WIDTH(M)	SET BACKS FOR BUILDING HT UP TO 11.5M				
					FRONT SIDE	REARSIDE	LEFT SIDE	RIGHT SIDE	
RESIDENTIAL	80-150	75%	1.75	UPTO 12	12%	8%	8%	8%	
	150-250	75%	1.75	UPTO 12					
	250-350	75%	1.75	UPTO 12					
	350-450	65%	2.25	12 TO 18					
	550-750	65%	2.25	12 TO 18					
COMMERCIAL	UP TO 12000	55%	1.50	LESS THAN 9	12%	8%	8%	8%	
		50%	1.75	9 TO 12					
		50%	2.25	12 TO 18					
		45%	2.50	18 TO 24					
		40%	3.00	24 TO 30					
		40%	2.25	ABOVE 30					
PUBLIC & SEMIPUBLIC	UP TO 500	60%	1.50	NA	12%	8%	8%	8%	
	UP TO 1000	55%	1.75						
	1000 TO 2000	50%	2.00						
	ABOVE 2000	45%	2.25						
MUTATION CORRIDOR	UP TO 12000	55%	2.75	UP TO 30M	AS PER HEIGHT OF THE BUILDING AND PLOT SIZE				
		50%	3.25	ABOVE 30M					
					* ALL AROUND SET BACKS FOR BUILDING HEIGHT ABOVE 11.5M UPTO 15M				5M
					* ALL AROUND SET BACKS FOR BUILDING HEIGHT ABOVE 15M UPTO 18M				6M
					* ALL AROUND SET BACKS FOR BUILDING HEIGHT ABOVE 18M UPTO 21M				7M

Summary of applicable building regulations  
Source: CDP 2015



**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**BMTC - BUS ROUTES AND DAILY TRIP DETAILS**

- ULSOOR - DOMLUR ROUTE - THROUGH CMH ROAD AND 100 FT ROAD
  - Total Buses 58
  - Total Trips 466
- ROUTES THROUGH 100FT. ROAD ONLY (DOMLUR TO OMR)
  - Total Buses 13
  - Total Trips 89
- ROUTES THROUGH 100FT. -CMH ROAD ONLY (DOMLUR TO JEEVANBHIMANAGAR)
  - Total Buses 29
  - Total Trips 258
- ROUTES THROUGH CMH ROAD - (ULSOOR TO CMH HOSPITAL)
  - Total Buses 158
  - Total Trips 1497
- OLD MADRAS ROAD ONLY
  - Total Buses 272
  - Total Trips 2626



Map showing the BMTC Bus Routes, Bus Stops and Metro Feeder Routes

**LEGEND**

BUS ROUTE: OLD MADRAS ROAD  
TRIPS: 2626

BUS ROUTE: CMH ROAD  
TRIPS: 1497

BUS ROUTE: ULSOOR - DOMLUR  
TRIPS: 508

BUS ROUTE: DOMLUR - JEEVANBHEEMA NAGAR  
TRIPS: 258

BUS ROUTE: DOMLUR - OLD MADRAS ROAD -  
TRIPS: 89

Bus Stop

**LINE TYPE**

METRO

DRAIN/NALA

500M CORE

500M RADIUS

STUDY AREA



**BMRC - DETAILED PROJECT REPORT, PHASE-1**

TABLE 1A - Agreed boarding and alighting, Peak Hour, 2025. Based on GC/CTTP, -10%, 18-8-08

Boarding - 5667  
Alighting - 11709

TABLE 2A - Agreed Section Loading, Peak Hour, 2025, O-D, D-O and PHPDT, Based on GC/CTTP, with Extension - 10%, 18-8-2008

OMR - CMH Road -	OD - 16041
	DO - 4701
	PHPDT - 16041
CMH Road - Ulsoor -	OD - 17987
	DO - 9945
	PHPDT - 17987

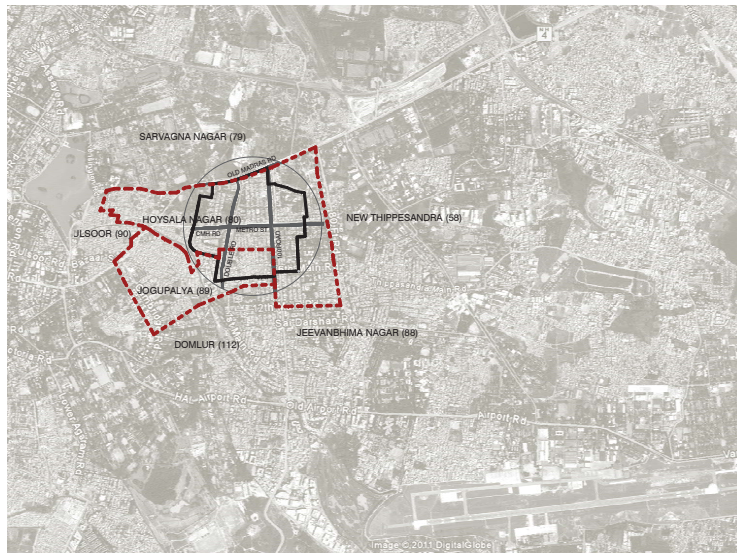
TABLE 2.10 STATION LOADS

C.M.H Road	2011 - 28089
	2021 - 40137

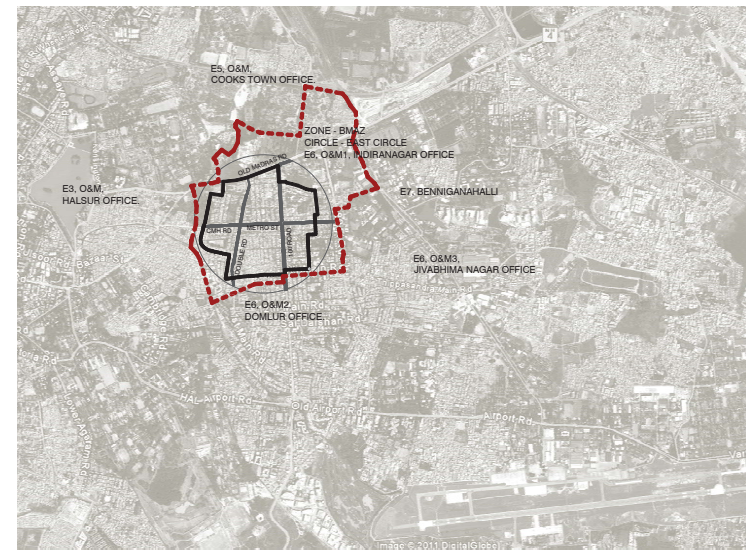
TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

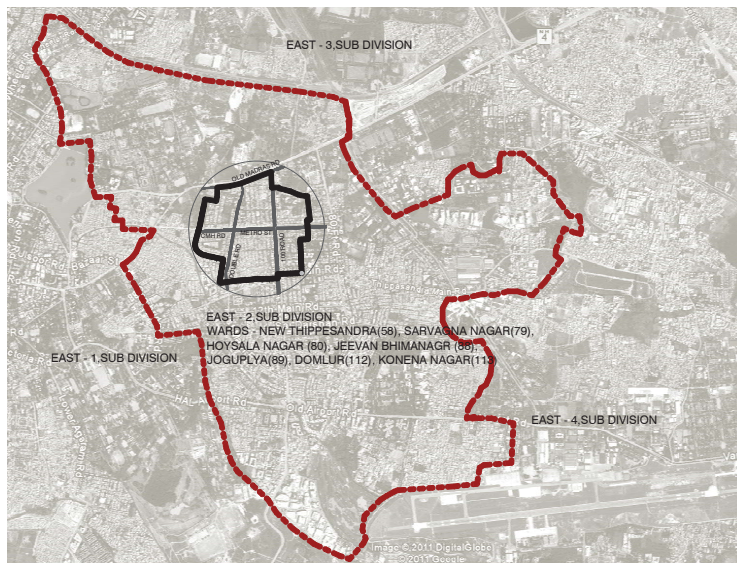
ADMINISTRATIVE BOUNDARIES OF CITY AGENCIES



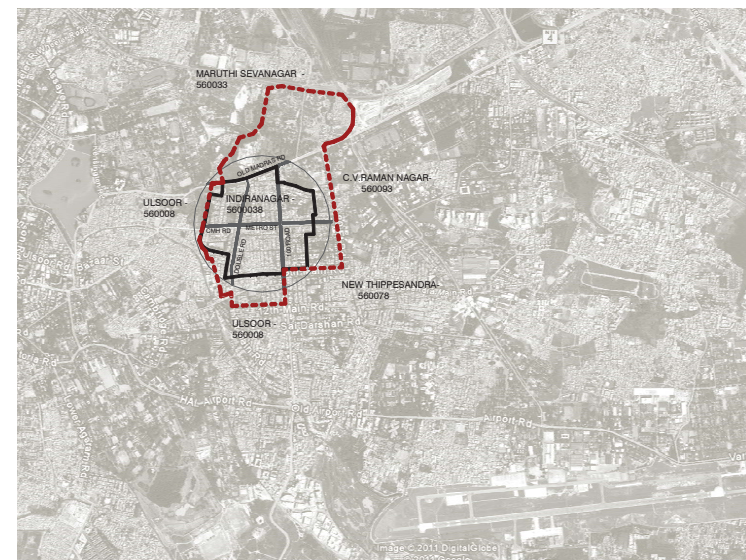
City Corporation (BBMP) Ward Boundary



BESCOM Administrative Boundary



BWSSB Administrative Boundary

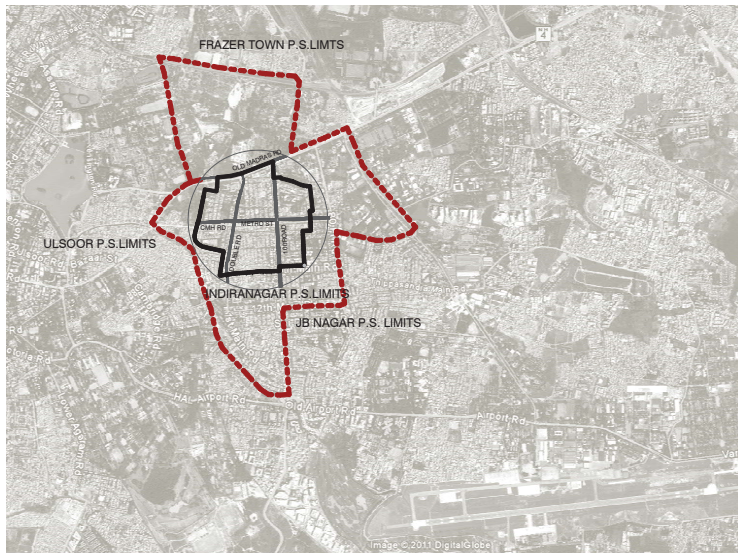


Post Office Administrative Boundary

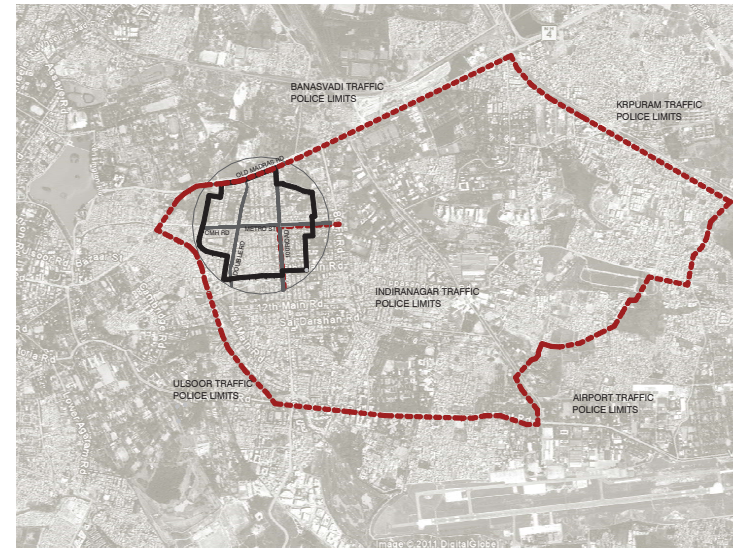


» DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

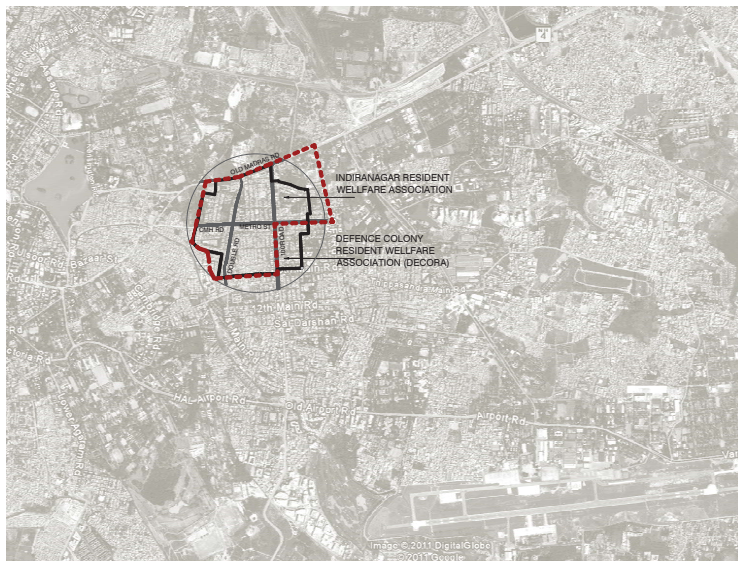
ADMINISTRATIVE BOUNDARIES OF CITY AGENCIES



Law Enforcement (Law/Order) Administrative Boundary



Law Enforcement (Traffic) Administrative Boundary



Resident Welfare Associations (RWA) Administrative Boundary



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

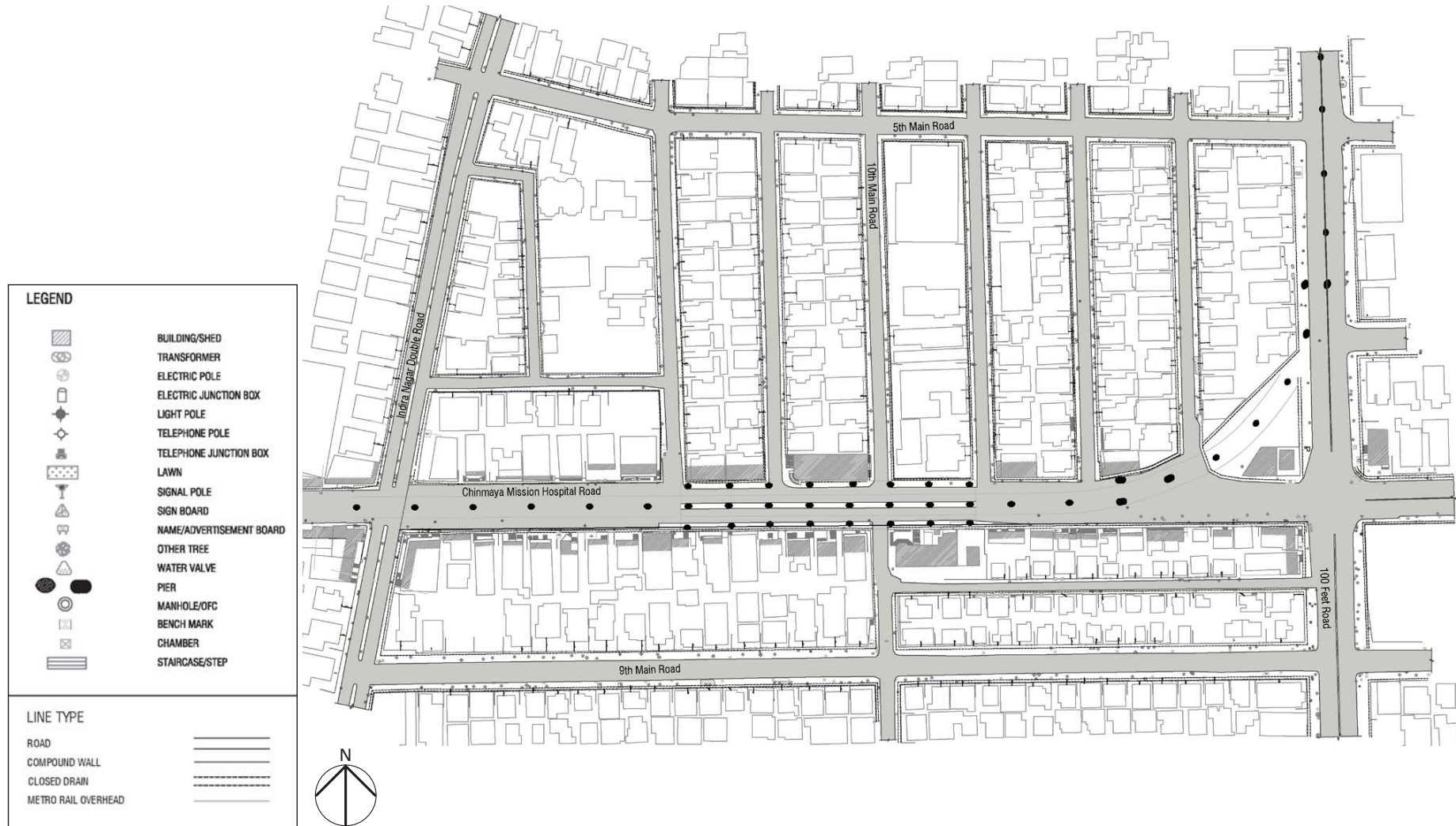
MAPPING INFORMATION - BUFFER AREA (750M RADIUS FROM METRO STATION)



Base Map of the 750 M Radius Buffer Area around the Metro Station generated from a collection of physical mapping, satellite image and TSS information  
Source: Sky Group

➤➤ DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

MAPPING INFORMATION - CORE AREA (150M RADIUS FROM METRO STATION)

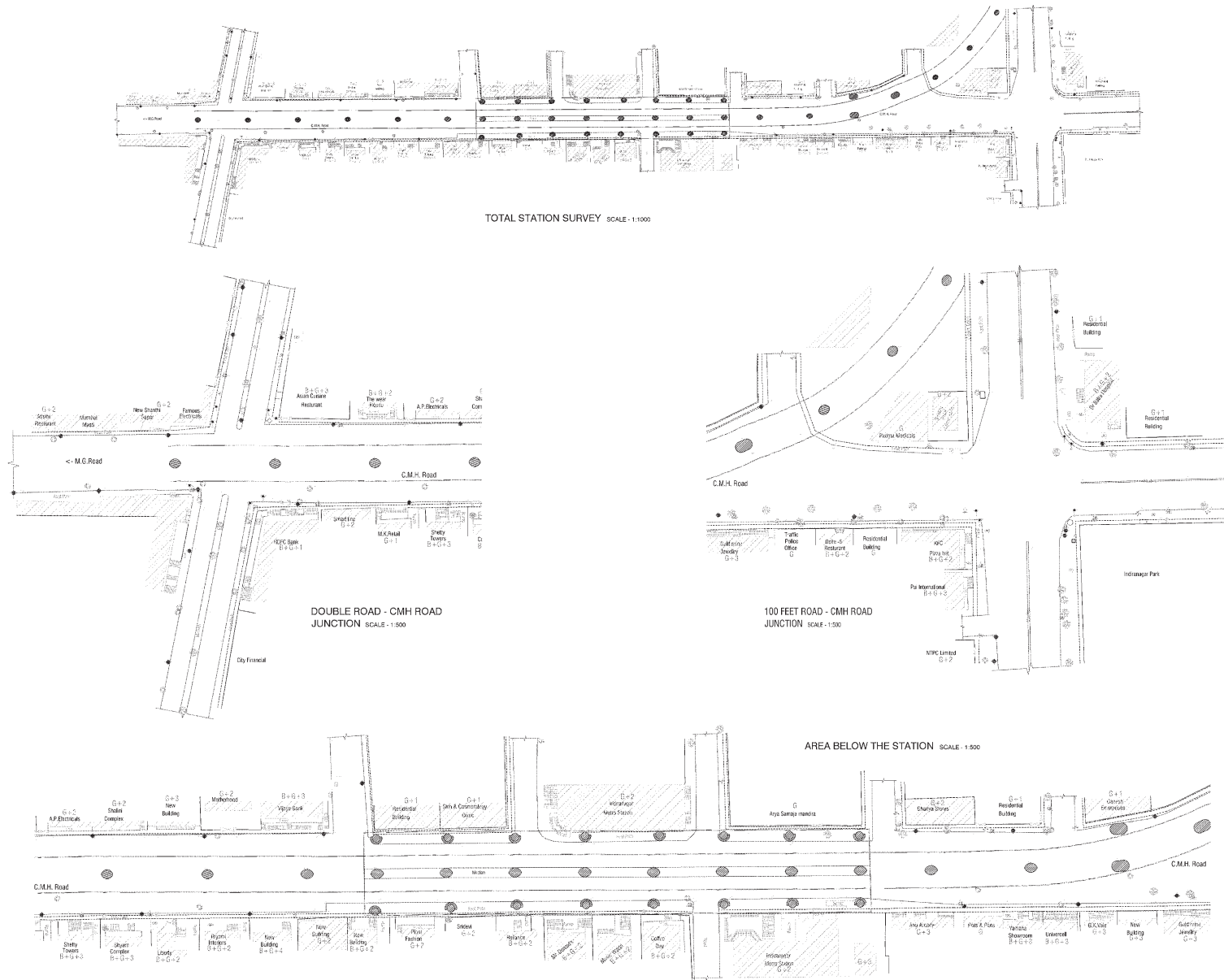




TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

MAPPING INFORMATION - TOTAL STATION SURVEY



**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**CENSUS DATA (1990, 2000)**

**1990 Census, Bharathi Nagar, Ward No. 77**

Total number Households:	3140
Total population:	18002
Total Male population:	9161
Total Female population:	8841
Total Working:	5231
Total Working Male:	4699
Total Working Female:	532
Non Working.:	12758
Non Working Male:	4456
Non Working Female:	8302
Male/Female ratio:	1000:965
Employment ratio:	35:65

**2000 Census, Hoysala Nagar, Ward No.82**

(60% representation based on the area of study zone that is part of the ward)

Total number Households:	7255
Total population:	33359
Total Male population:	16759
Total Female population:	16600
Total Working:	12469
Total Working Male:	9313
Total Working Female:	3094
Non Working:	20952
Non Working Male:	7446
Non Working Female:	13506
Male/Female ratio:	1000:990
Employment ratio:	37:63

TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

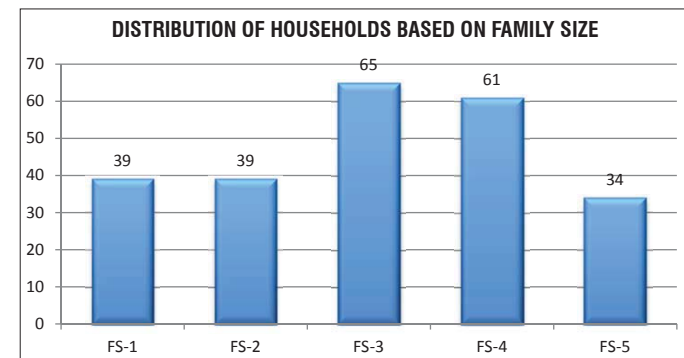
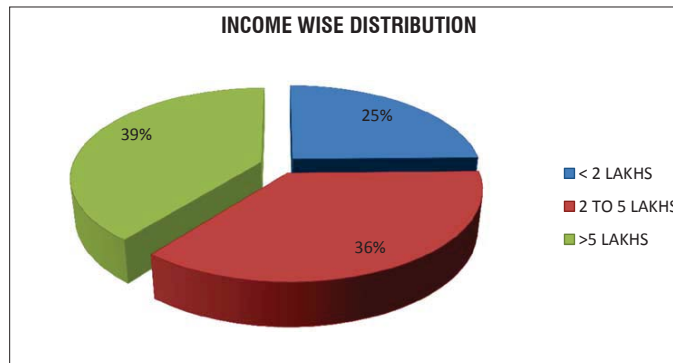
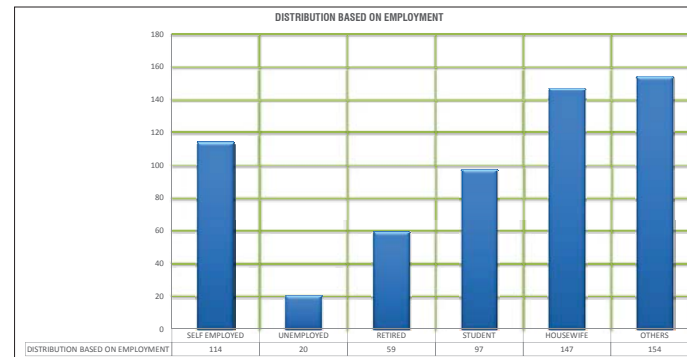
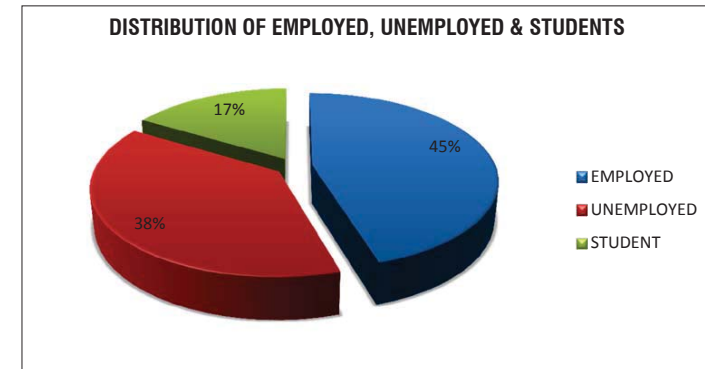
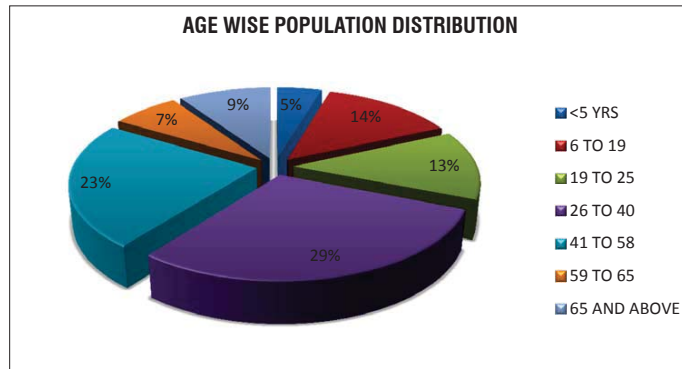
DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW  
RESIDENTS' SURVEY - QUESTIONNAIRE FORM

ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION										EMBARQ					
DETAILED QUESTIONNAIRE FORMAT FOR INDIRANAGAR RESIDENTS										Interviewer Name :		Interview No.			
<b>A SOCIAL ECONOMIC CHARACTERISTICS</b>															
<b>PERSONAL PARTICULARS</b>															
FULL NAME OF SURVEY RESPONDENT: Mr. Mrs. Ms.						NAME OF THE HEAD OF THE HOUSEHOLD									
LAND USE OF THE BUILDING			HOUSE TYPE			PLOT AREA			ADDRESS						
LAND VALUE				BUILDING VALUE											
OWNERSHIP OF ELECTRONIC GADGETS										OWN OR PARTLY RENTED HOUSE(VALUE)		RENTED HOUSE(VALUE)			
TV		AC		WASHING MACHINE		LANDLINE		COMPUTER		FRIDGE					
LOCATIONS OF RECREATION SPACES VISITED IN THE NEIGHBOURHOOD															
SPORTS CLUBS			PARKS AND PLAY GROUNDS			HEALTH FACILITIES			EDUCATION			COMMUNITY CENTRES		OTHERS	
COMMUNITY INTERACTIONS IN THE NEIGHBOURHOOD															
<b>FAMILY MEMBER DETAILS (Uses Legend Codes)</b>															
NAME/RELATION		GENDER	AGE	MARITAL STATUS	POSITION IN HOUSE	ACADEMIC QUALIFICATION	HOUSE CONDITION	WORKING STATUS	INCOME (IN% HOUSEHOLD INCOME)		VEHICAL OWNERSHIP OR RENTAL				
											Type	Own/Rentd			
1															
2															
3															
4															
5															
<b>LEGEND</b>															
CATEGORY		CODE	1	2	3	4	5	6	7	8	9	10			
a AGE GROUP(YEARS)		-<5	6 TO 19	19 TO 25	26 TO 40	41 TO 58	59 TO 65	65 AND ABOVE							
b MARITAL STATUS		MARRIED	UNMARRIED												
c VEHICAL OWNERSHIP		CYCLE	TWO WHEELER	CAR	OTHERS										
d WORKING STATUS		EMPLOYED	UNEMPLOYED	RETIRED	STUDENT	HOUSEWIFE	OTHERS								
e ACADEMIC QUALIFICATION		-<HSC	HSC	UG	PG	TECHNICAL	MEDICAL	DIPLOMA	ILLITERATE	OTHERS					
f FAMILY INCOME		GOVERNMENT	PVT.	AGRICULTURE	HORTICULTURE	ANIMAL HUSBANDRY	TRADE AND COMMERCE	INDUSTRY(SPECIFY)	PSOCULTURE	SELF EMPLOYED	OTHERS				
g AVERAGE ANNUAL HOUSEHOLD INCOME		-< 2 LAKHS	2 TO 5 LAKHS	> 5 LAKHS											
<b>B OCCUPATIONAL NEEDS</b>															
NEEDS ASSESSMENT BASED ON THE TYPE OF OCCUPATION															
<b>SHOP KEEPER OR TRADE AND COMMERCE RELATED</b>		<b>GOVERNMENT EMPLOYEE</b>		<b>PRIVATE EMPLOYER</b>		<b>STUDENT</b>		<b>OTHERS</b>							
LOCATION OF THE SHOP/HOTEL		NATURE OF THE SHOP/GOODS		LOCATION OF THE OFFICE		LOCATION OF THE OFFICE		LOCATION OF EDUCATIONAL INST.		LOCATION OF THE OFFICE					
AREA OF THE SHOP		PEAK SEASON OF SALE		TYPE OF OFFICE		TYPE OF OFFICE		TYPE OF COURSE		TYPE OF OFFICE					
TIME OF ENTRY/EXIT OF GOODS		SOURCE LOCATION OF GOODS		DESIGNATION		DESIGNATION		DESIGNATION							
COMMENTS AND SUGGESTIONS															

ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION										EMBARQ						
QUICK SURVEY FORMAT FOR INDIRANAGAR RESIDENTS										INTERVIEWER NAME:		INTERVIEW NO.				
<b>WALKING AND CYCLING RELATED QUESTIONS</b>																
<b>WALKING</b>																
<b>DURING YOUR WALKING TRIPS IN THE NEIGHBOURHOOD, WHAT IS THE MOST DIFFICULT?</b>																
										YES	NO					
PAVEMENT BLOCKING																
BAD CONDITION OF PAVEMENTS OR NO PAVEMENTS																
BAD CONDITION OF ROADS																
LACK OF STREET LIGHTING																
HIGH RISK OF ACCIDENTS																
RISK OF ASSAULTS																
BAD ODOURS, SOLID WASTE,DIRTYNESS																
BAD CONDITION OF THE DRAINS																
<b>CYCLING</b>																
										YES	NO					
ARE YOU RELUCTANT TO USE A BICYCLE IN THE CITY OF BANGALORE?																
TRAFFIC IS TOO DANGEROUS																
TOO MUCH POLLUTION																
WEATHER IS NOT TOO APPROPRIATE																
DISTANCES FOR DAILY TRIPS ARE TOO LONG																
NOT ENOUGH AND APPROPRIATE PARKING SPACES																
SCARED OF THEFTS																
NOT SUITABLE TO CARRY HEAVY LOADS																
NOT SUITABLE TO CARRY CHILDREN																
IF THE CITY OF BANGALORE WAS MORE CYCLE FRIENDLY WOULD YOU USE A BICYCLE MORE VOLUNTARILY AND FOR WHAT KIND OF TRIPS?																
NOTABLE POINTS:																
TRAVEL DETAILS																
FREQUENCY AND MODE OF TRANSPORT RELATED QUESTIONS																
										LOCAL	REGION/STATE	OUT OF STATE				
ROAD TRAVEL (CAR/ BIKE)																
PUBLIC TRANSPORT (BUS/ PARA TRANSIT)																
RAIL TRAVEL																
BY WALK/ CYCLE																
<b>LEGEND</b>																
1- DAILY			2- MONTHLY			3- BI-MONTHLY			4- BI-ANNUALLY		5- ANNUALLY					
a- TWO WHEELERS			b- CAR			c- BUS			d- BICYCLE		e- WALK					
f- AUTO			g- TAXI			h- FLIGHT										
NOTABLE POINTS																
ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION																
PARKING REQUIREMENTS IN THE NEIGHBOURHOOD										EMBARQ						
										PARAMETERS	TYPE OF VEHICLE	WORKPLACE (ALSO SPECIFY LOCATION)	DESTINATION AND SHOPPING/LEISURE SPECIFY LOCATION)	BY ROAD (ALSO SPECIFY LOCATION)	COMMON PARKING(ALSO SPECIFY LOCATION)	OTHER PARKING(ALSO SPECIFY LOCATION)
1	DURATION OF PARKING															
2	PARKING CHARGES- HOURLY/ MONTHLY/ ANNUALLY															
3	PARKING AVAILABLE- EASILY/ AVAILABLE/ MODERATELY/ DIFFICULT															
<b>QUESTIONS ON PERMIT CONTROL</b>																
IS THERE A PARKING PROBLEM IN YOUR STREET?										YES	NO					
WOULD PERMIT CONTROL HELP SOLVE PARKING PROBLEMS IN YOUR STREET?																
WOULD BE PREPARED TO PAY FOR A RESIDENT PARKING PERMIT TO MEET THE COSTS OF THE SCHEME																
WOULD PERMITS FOR VEHICLES BE HELPFUL?																
NOTABLE POINTS																

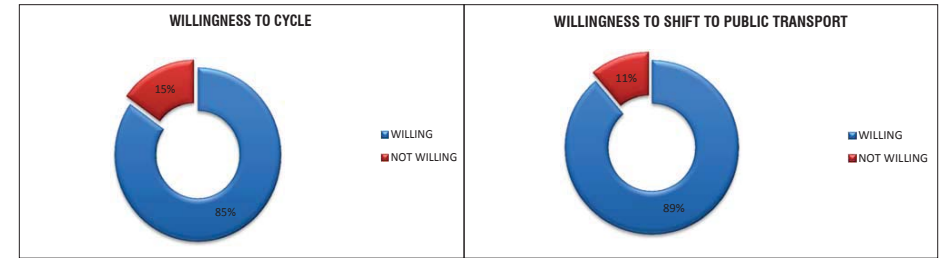
**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**RESIDENT'S SURVEY - DATA COLLECTED**



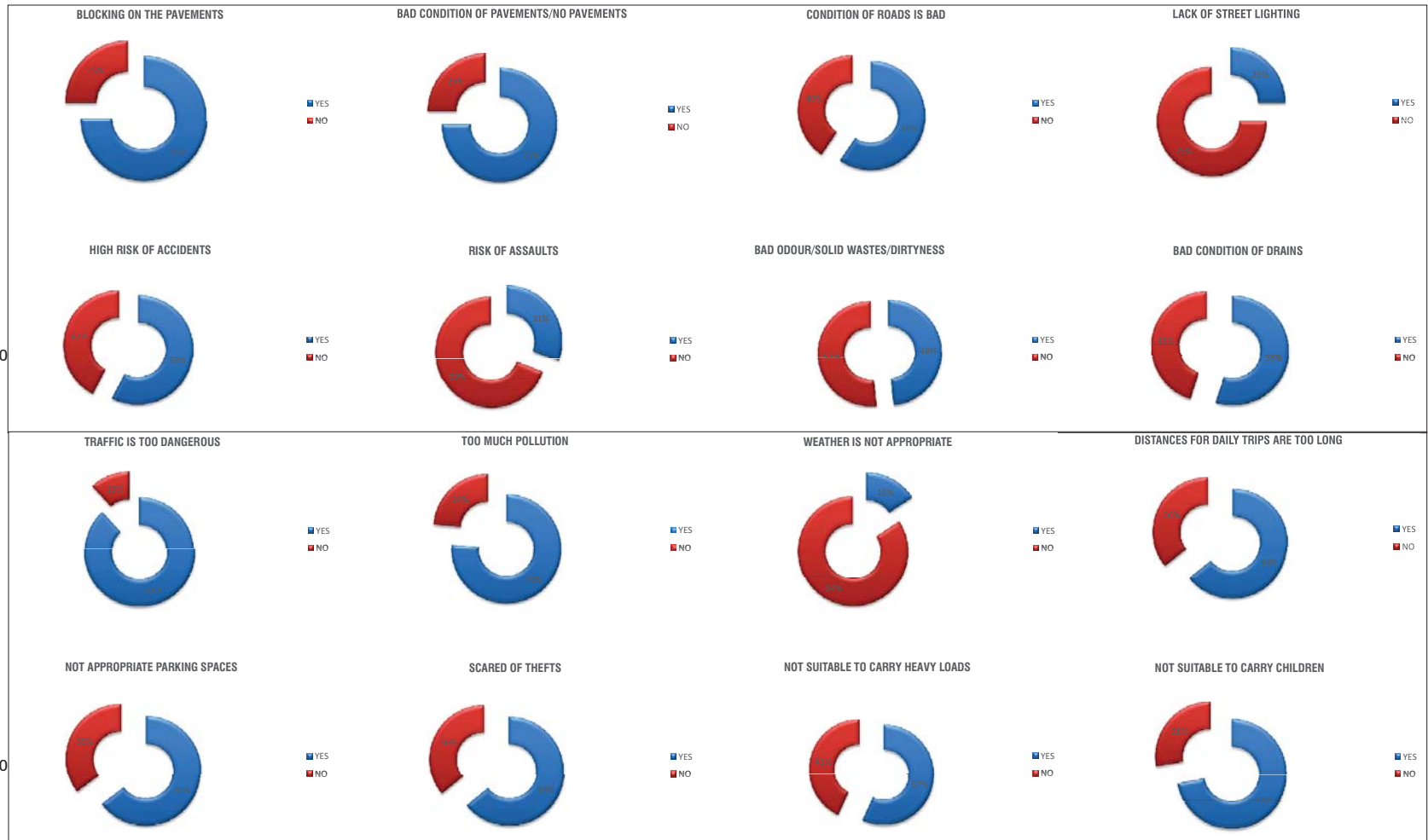
**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**



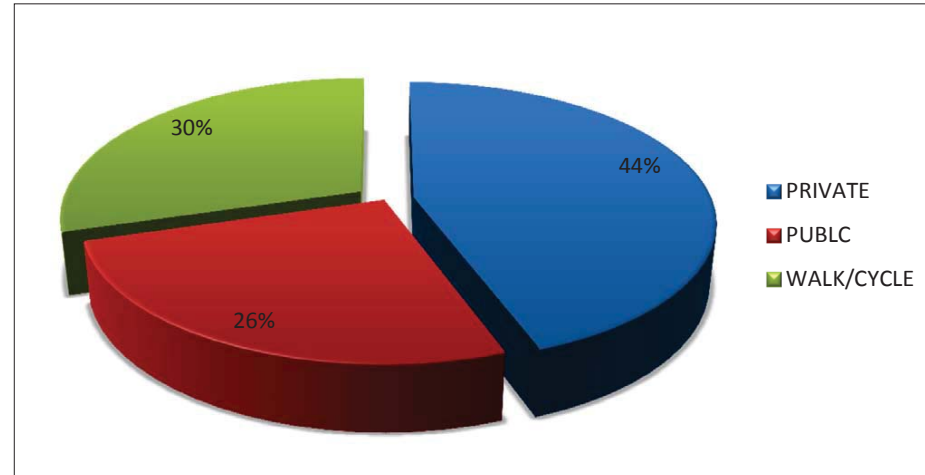
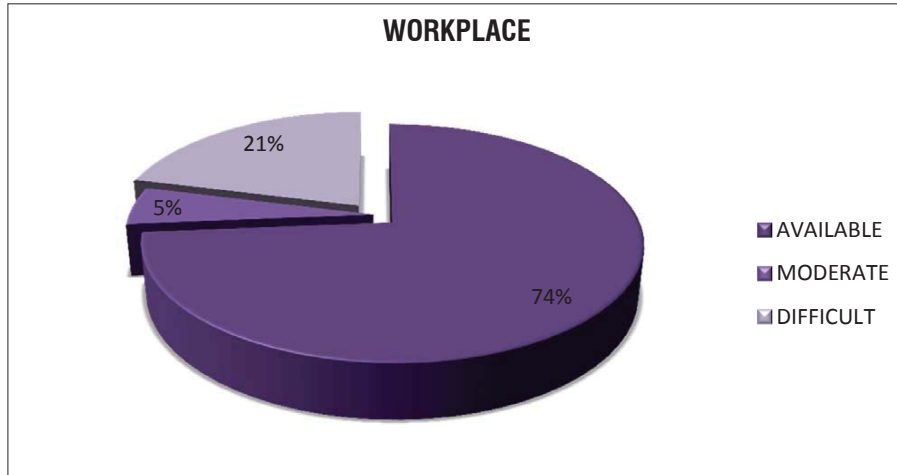
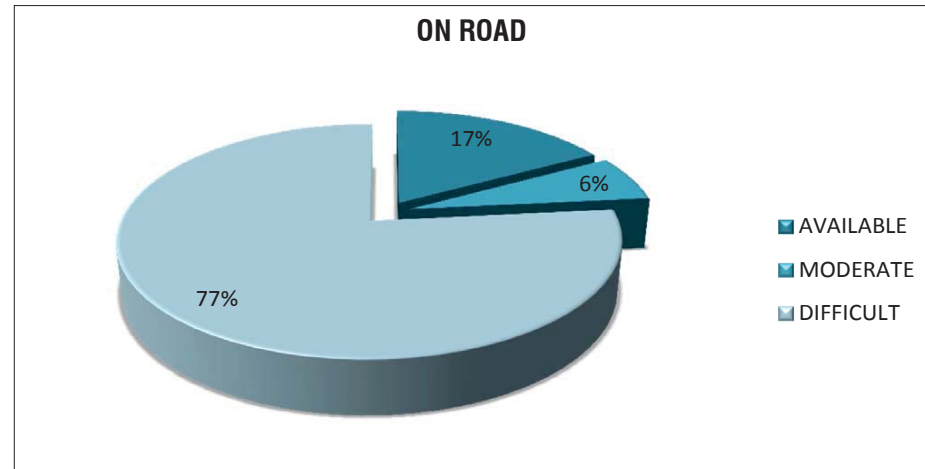
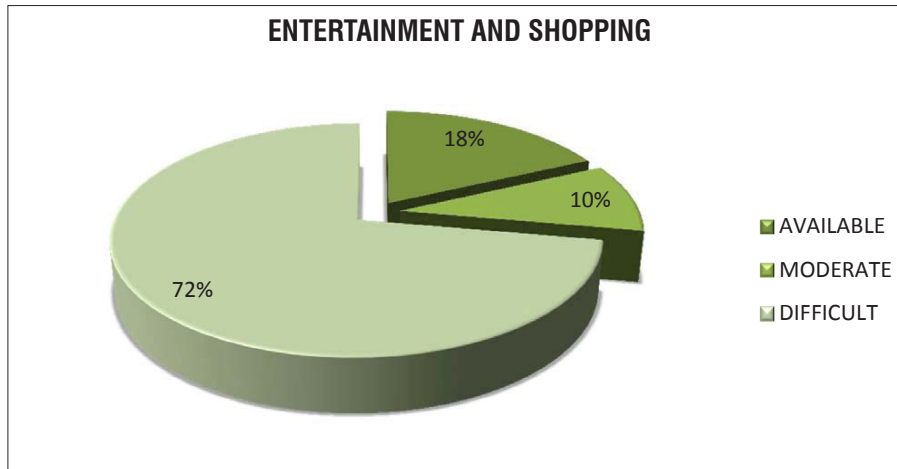
Data pertaining to walking-related surveys

Data pertaining to cycling-related surveys



**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**RESIDENT'S SURVEY - DATA COLLECTED**



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**» DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

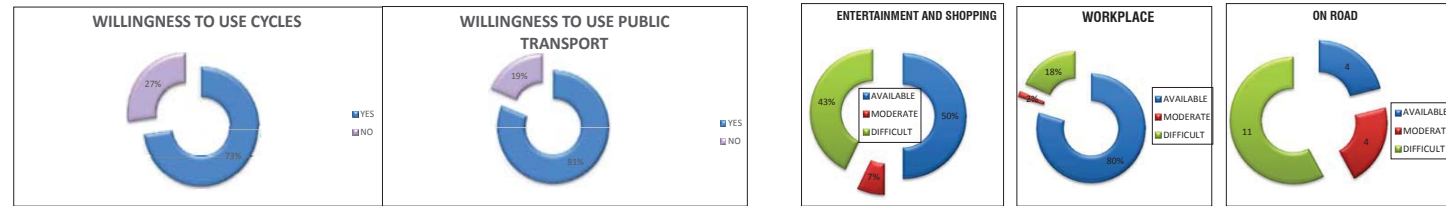
**VISITOR'S SURVEY - QUESTIONNAIRE FORM**

ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION					EMBARQ	
QUICK SURVEY FOR CMH ROAD INDRANAGAR VISITOR				Interviewer's Name :	Interview No.:	
<b>A VISITOR PROFILE</b>						
<b>VISITOR PARTICULARS</b>			<b>MODE OF TRANSPORT USED FOR DAILY COMMUTE</b>			
1	FULL NAME OF SURVEY RESPONDANT: Mr. Mrs. Ms.		3	PUBLIC TRANSPORT	PARA TRANSIT	PRIVATE TRANSPORT
2	RESIDENCE LOCATION			WALKING	CYCLING	CAR
				2-WHEELER		
<b>5 VISITOR NEEDS</b>						
<b>WORKPLACE</b>		<b>COMMERCE/SHOPPING</b>	<b>DINING/CLUBBING</b>	<b>HEALTHCARE FACILITY</b>	<b>OTHERS</b>	
A	LOCATION OF WORKPLACE	TYPE OF ORGANISATION	ORIGIN	ORIGIN	ORIGIN	ORIGIN
B	WORKING HOURS	PEAK SEASON OF SALE	DESTINATION	DESTINATION	DESTINATION	DESTINATION
C	TIME OF ENTRY/EXIT OF GOODS	SOURCE LOCATION OF GOODS	VISITING FREQUENCY	VISITING FREQUENCY	VISITING FREQUENCY	VISITING FREQUENCY
			VISITING HOURS	VISITING HOURS	VISITING HOURS	VISITING HOURS
<b>COMMENTS AND SUGGESTIONS</b>						

ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION					EMBARQ		
QUICK SURVEY FORMAT FOR CMH ROAD INDRANAGAR VISITORS			INTERVIEWER NAME:	INTERVIEW NO.:			
<b>WALKING AND CYCLING RELATED QUESTIONS</b>							
<b>WALKING</b>							
<b>DURING YOUR WALKING TRIPS IN THE NEIGHBOURHOOD, WHAT IS THE MOST DIFFICULT?</b>							
	YES			NO			
PAVEMENT BLOCKING							
BAD CONDITION OF PAVEMENTS OR NO PAVEMENTS							
BAD CONDITION OF ROADS							
LACK OF STREET LIGHTING							
HIGH RISK OF ACCIDENTS							
RISK OF ASSAULTS							
BAD ODOURS, SOLID WASTE DIRTYNESS							
BAD CONDITION OF THE DRAINS							
<b>CYCLING</b>							
	YES			NO			
ARE YOU RELUCTANT TO USE A BICYCLE IN THE CITY OF BANGALORE?							
TRAFFIC IS TOO DANGEROUS							
TOO MUCH POLLUTION							
WEATHER IS NOT TOO APPROPRIATE							
DISTANCES FOR DAILY TRIPS ARE TOO LONG							
NOT ENOUGH AND APPROPRIATE PARKING SPACES							
SCARED OF THEFTS							
NOT SUITABLE TO CARRY HEAVY LOADS							
NOT SUITABLE TO CARRY CHILDREN							
IF THE CITY OF BANGALORE WAS MORE CYCLE FRIENDLY WOULD YOU USE A BICYCLE MORE VOLUNTARILY AND FOR WHAT KIND OF TRIPS?							
<b>NOTABLE POINTS:</b>							
<b>PUBLIC TRANSPORT</b>							
	YES			NO			
ARE YOU RELUCTANT TO USE PUBLIC TRANSPORT IN THE CITY OF BANGALORE?							
ARE THE BUS STOPS TOO FEW							
LESS FREQUENCY OF BUSES							
IS IT CROWDED							
DOES SWITCHING BUSES CAUSE DISCOMFORT							
DOES PUBLIC TRANSPORT TAKE LONG TRIP DURATION							
SCARED OF THEFTS							
RISK OF ASSAULTS							
BAD PUBLIC TRANSPORT SERVICE TIMING							
DO THE LANGUAGE & LEGIBILITY ON SIGNBOARDS CAUSE DISCOMFORT							
IF THE PUBLIC TRANSPORT SYSTEM IS IMPROVED WITH THE ADDITION OF METRO & ACCESSIBILITY TO THE METRO IS MADE EASY, WOULD YOU BE WILLING TO START USING PUBLIC TRANSPORT FOR DAILY COMMUTE?							
<b>NOTABLE POINTS:</b>							
<b>ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION</b>							
<b>PARKING REQUIREMENTS FOR VISITORS</b>							
	PARAMETERS	TYPE OF VEHICLE	WORKPLACE	ENTERTAINMENT AND SHOPPING	ON ROAD	COURT/PARKING	WITHIN PREMISES
1	SEPARATION OF PARKING						
2	PARKING CHARGE: HOURLY/ MONTHLY/ ANNUALLY						
3	PARKING AVAILABILITY: EASILY AVAILABLE/ MODERATELY DIFFICULT						
<b>NOTABLE POINTS</b>							

**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

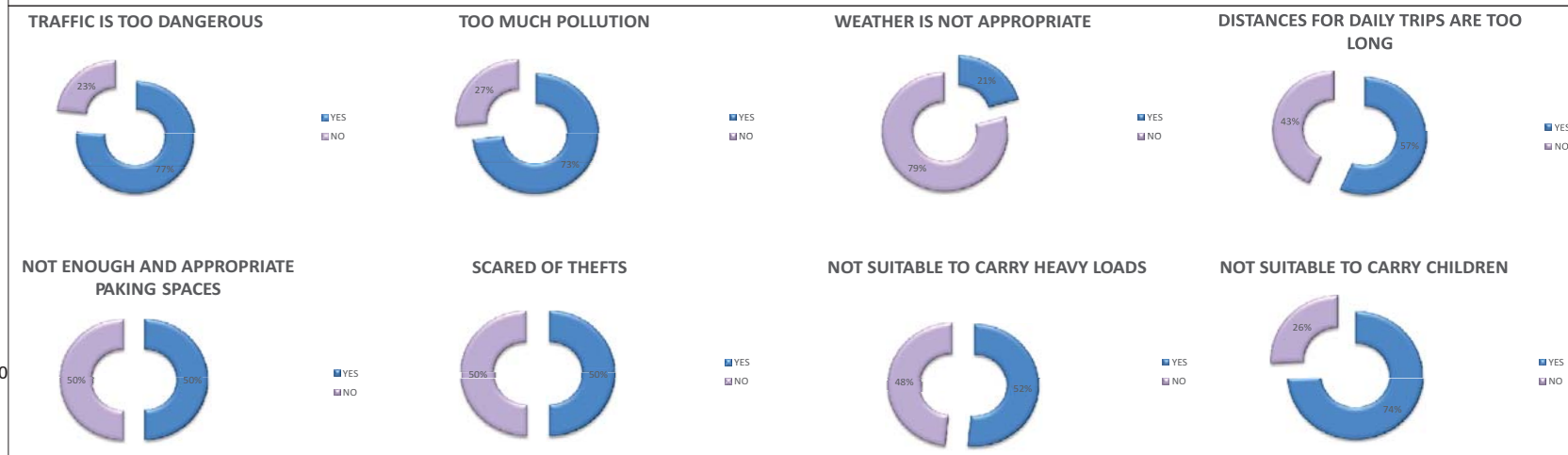
**VISITOR'S SURVEY - DATA COLLECTED**



Data pertaining to walking-related surveys



Data pertaining to cycling-related surveys





TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

» DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

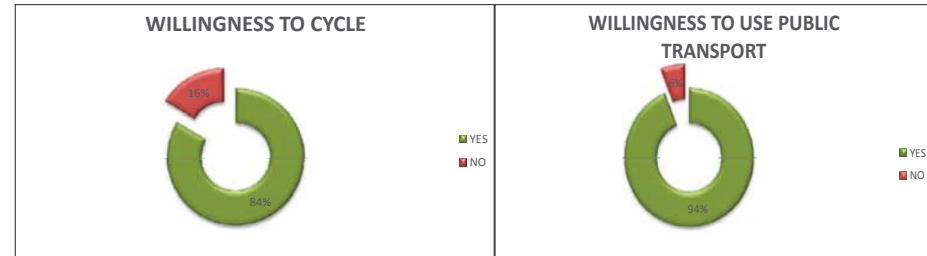
PASSERBY'S SURVEY - QUESTIONNAIRE FORM

ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION				EMBARQ	
QUICK SURVEY FOR PASSER-BY THROUGH CMH ROAD INDIRANAGAR			Interviewer's Name :	Interview No.	
<b>A PASSER-BY PROFILE</b>					
<b>PASSER-BY PARTICULARS</b>					
1	FULL NAME OF SURVEY RESPONDANT: Mr. Mrs. Ms.		ORIGIN	WAITING DURATION (IF ANY)	EDUCATIONAL QUALIFICATION
2	RESIDENCE LOCATION		DESTINATION	PURPOSE OF VISIT	OCCUPATION
<b>HOW OFTEN DO YOU PASS BY CMH ROAD</b>					
4	A-DAILY	B-2 TO 3 TIMES IN A WEEK	C-ONCE IN A WEEK	D-MONTHLY	E-RARELY
<b>COMMONLY USED MODE OF TRANSPORT - SINGLE/MULTIPLE</b>					
5	PUBLIC TRANSPORT	PARA TRANSIT	PRIVATE TRANSPORT	WALKING/CYCLING	OTHERS
	<b>LEGEND</b>				
				A-BUS	C-TAXI
				B-AUTO	D-CYCLE
					1-CAR
					2-WHEELER
6	RATING FOR THE LEGIBILITY OF THE ROAD SIGNS		EXCELLENT	GOOD	BAD
7	WILLINGNESS TO SHIFT TO PUBLIC TRANSPORT		YES	NO	

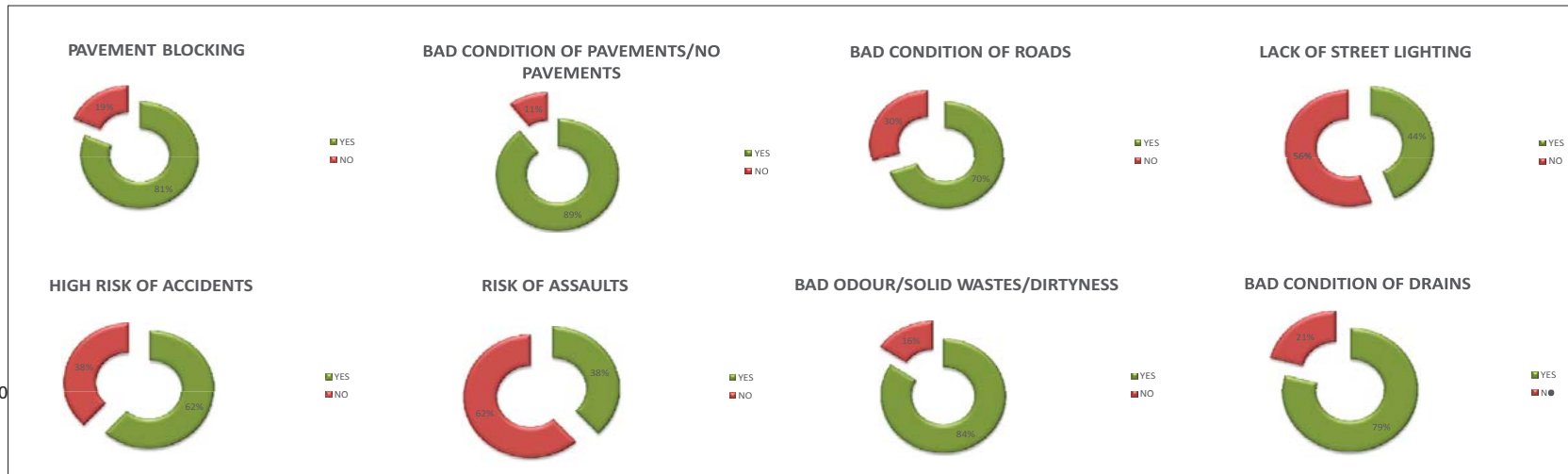
ACCESSIBILITY STUDY FOR THE CMH ROAD METRO STATION			EMBARQ	
QUICK SURVEY FOR PASSER BY THROUGH CMH ROAD INDIRANAGAR		INTERVIEWER NAME:	INTERVIEW NO.	
<b>WALKING AND CYCLING RELATED QUESTIONS</b>				
<b>WALKING</b>				
<b>DURING YOUR WALKING TRIPS IN THE NEIGHBOURHOOD, WHAT IS THE MOST DIFFICULTY?</b>				
	YES	NO		
PAVEMENT BLOCKING				
BAD CONDITION OF PAVEMENTS OR NO PAVEMENTS				
BAD CONDITION OF ROADS				
LACK OF STREET LIGHTING				
HIGH RISK OF ACCIDENTS				
RISK OF ASSAULTS				
BAD ODOURS, SOLID WASTE DIRTYNESS				
BAD CONDITION OF THE DRAINS				
<b>CYCLING</b>				
	YES	NO		
ARE YOU RELUCTANT TO USE A BICYCLE IN THE CITY OF BANGALORE?				
TRAFFIC IS TOO DANGEROUS				
TOO MUCH POLLUTION				
WEATHER IS NOT TOO APPROPRIATE				
DISTANCES FOR DAILY TRIPS ARE TOO LONG				
NOT ENOUGH AND APPROPRIATE PARKING SPACES				
SCARED OF THEFTS				
NOT SUITABLE TO CARRY HEAVY LOADS				
NOT SUITABLE TO CARRY CHILDREN				
IF THE CITY OF BANGALORE WAS MORE CYCLE FRIENDLY WOULD YOU USE A BICYCLE MORE VOLUNTARILY AND FOR WHAT KIND OF TRIPS?				
<b>NOTABLE POINTS:</b>				
<b>PUBLIC TRANSPORT</b>				
	YES	NO		
ARE YOU RELUCTANT TO USE PUBLIC TRANSPORT IN THE CITY OF BANGALORE?				
ARE THE BUS STOPS TOO FEW				
LESS FREQUENCY OF BUSES				
IS IT CROWDED				
DOES SWITCHING BUSES CAUSE DISCOMFORT				
DOES PUBLIC TRANSPORT TAKE LONG TRIP DURATION				
SCARED OF THEFTS				
RISK OF ASSAULTS				
BAD PUBLIC TRANSPORT SERVICE TIMING				
DO THE LANGUAGE & LEGIBILITY ON SIGNBOARDS CAUSE DISCOMFORT				
IF THE PUBLIC TRANSPORT SYSTEM IS IMPROVED WITH THE ADDITION OF METRO & ACCESSIBILITY TO THE METRO IS MADE EASY, WOULD YOU BE WILLING TO START USING PUBLIC TRANSPORT FOR DAILY COMMUTE?				
<b>NOTABLE POINTS:</b>				

**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

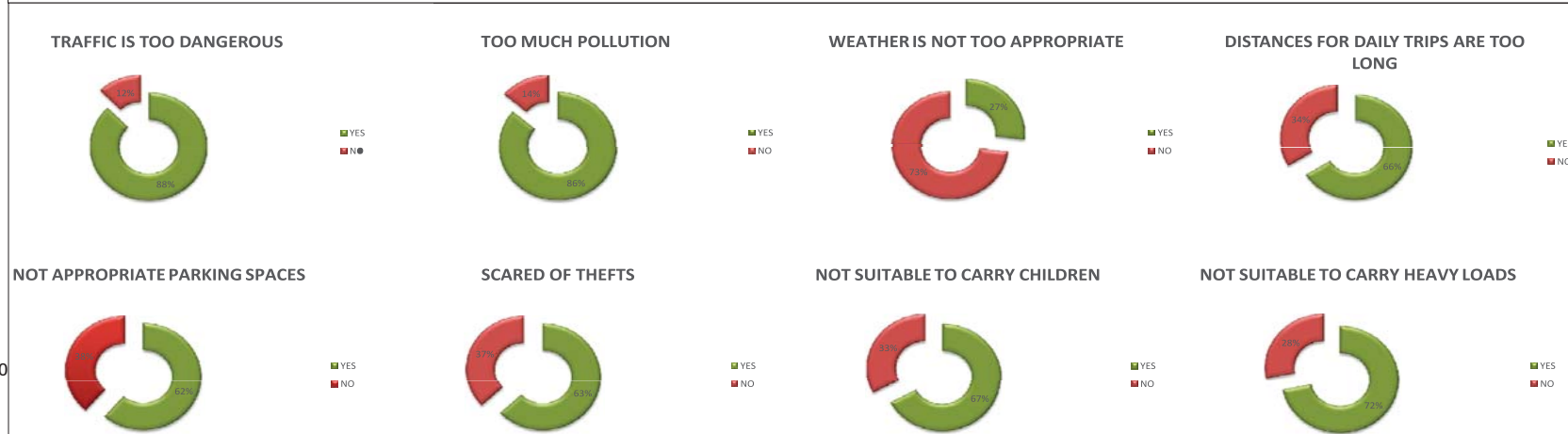
**PASSERBY'S SURVEY - DATA COLLECTED**



Data pertaining to walking-related surveys



Data pertaining to cycling-related surveys



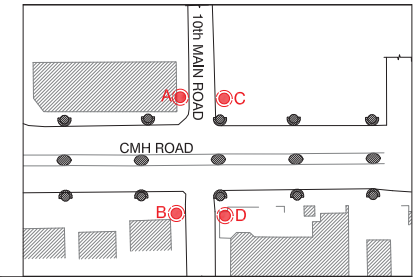
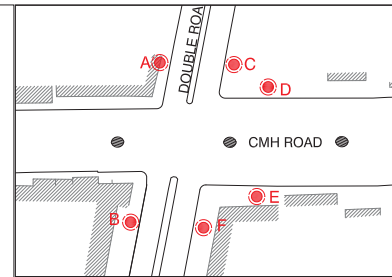
**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**PEDESTRIAN VOLUME COUNTS**

**Pedestrian Counts taken at the Junction of Sector N1 and S1 between 9AM and 9PM**

Location	Time	Number	Location	Time	Number
A	1 PM	324	B	1 PM	435
	7 PM	301		7 PM	477
	8 PM	147		8 PM	147
C	1 PM	238	D	2 PM	459
	7 PM	214		7 PM	459
	8 PM	104		9 PM	277
E	11 AM	581	F	1 PM	564
	7 PM	630		3 PM	520
	8 AM	358		8 PM	288

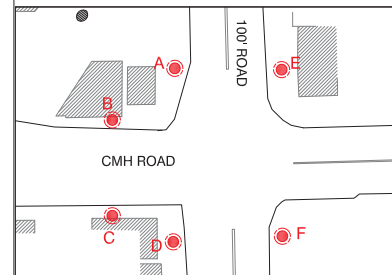


**Pedestrian Counts taken at the Junction of Sector N2 and S2 between 9AM and 9PM**

Location	Time	Number	Location	Time	Number
A	2 PM	105	B	2 PM	321
	3 PM	140		3 PM	350
	4 PM	14		4 PM	150
C	2 PM	66	D	11 PM	375
	3 PM	129		7 PM	375
	4 PM	10		4 PM	255

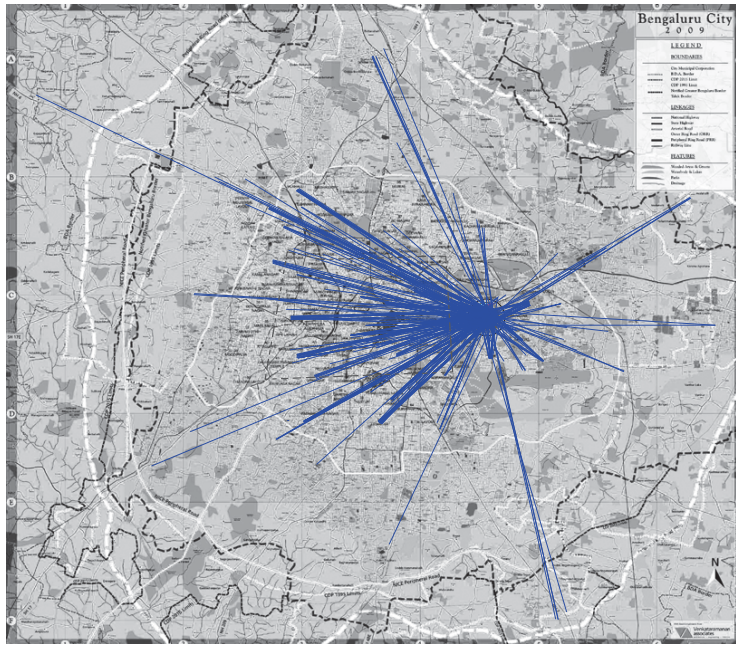
**Pedestrian Counts taken at the Junction of Sector N3 and S3 between 9AM and 9PM**

Location	Time	Number	Location	Time	Number
A	1 PM	660	B	2 PM	430
	6 PM	685		6 PM	459
	2 PM	433		1 PM	240
C	10 AM	248	D	1 PM	665
	8 PM	477		7 PM	785
	3 PM	221		2 PM	261
E	9 AM	485	F	8 AM	609
	6 PM	519		7 PM	550
	4 AM	237		2 PM	310

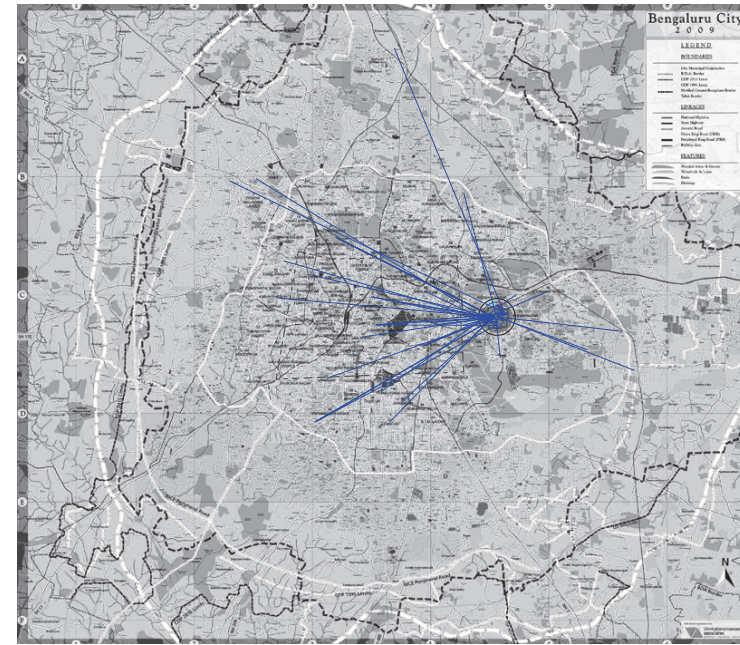


**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

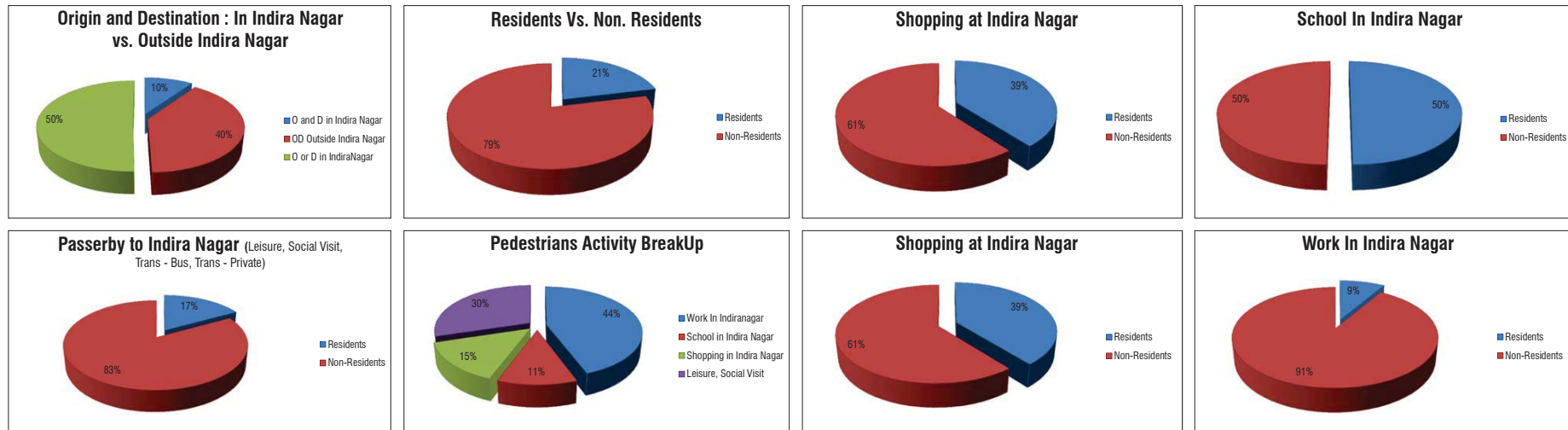
**PEDESTRIAN ORIGIN-DESTINATION (OD) SURVEYS**



Graphic representation of Non-Residents Pedestrian Origin and Destination Surveys



Graphic representation of Residents Pedestrian Origin and Destination Surveys

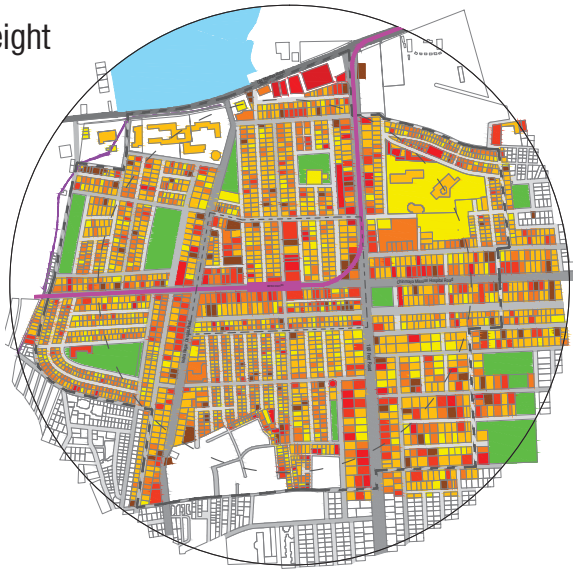


**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**URBAN FABRIC DATA - BUILDING HEIGHT, BUILDING USE, LAND OWNERSHIP**

Building Height



Building Use  
Ground Floor



Land Ownership



Building Use  
First Floor



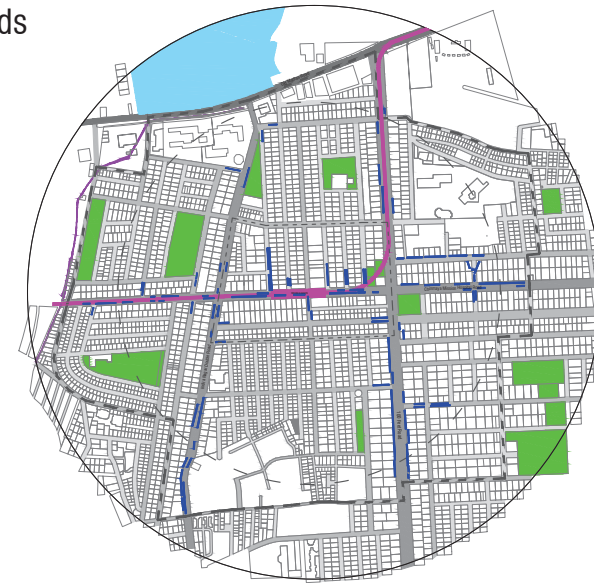
**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

URBAN FABRIC DATA - ROAD HIERARCHY, ACTIVITIES AND GENERATORS, PARKING STANDS(AUTO, TAXI)

Activities and  
Generators



Parking Stands  
Auto/Taxi



Road Hierarchy



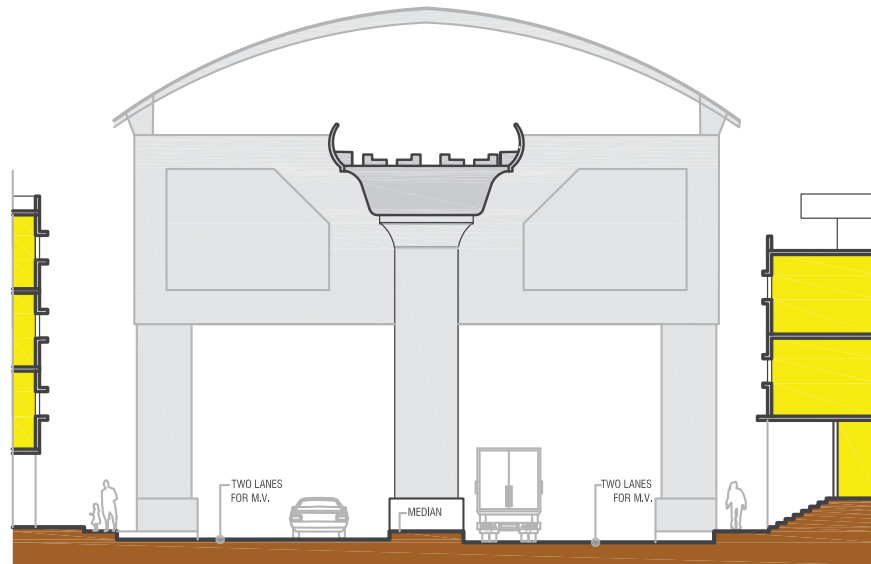
BMTC Metro  
Feeder Map



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

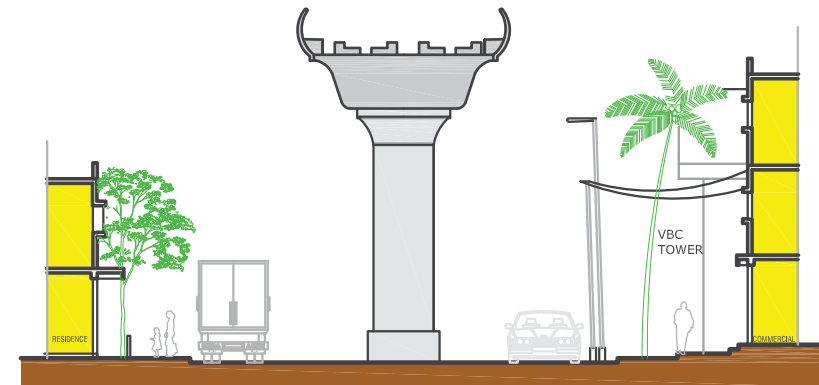
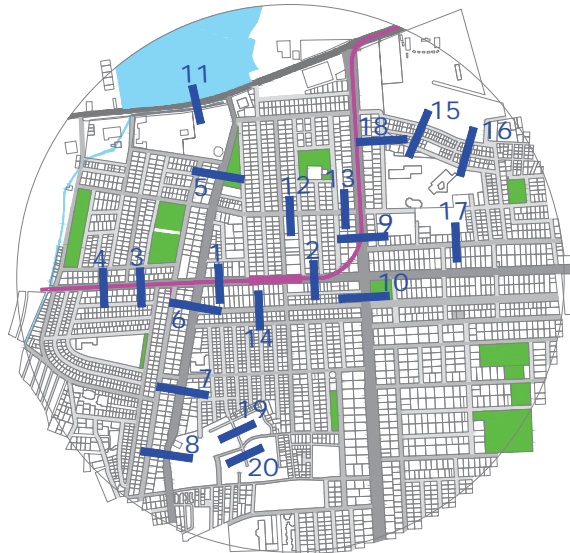
URBAN FABRIC DATA - EXISTING STREET SECTIONS



SECTION - 1



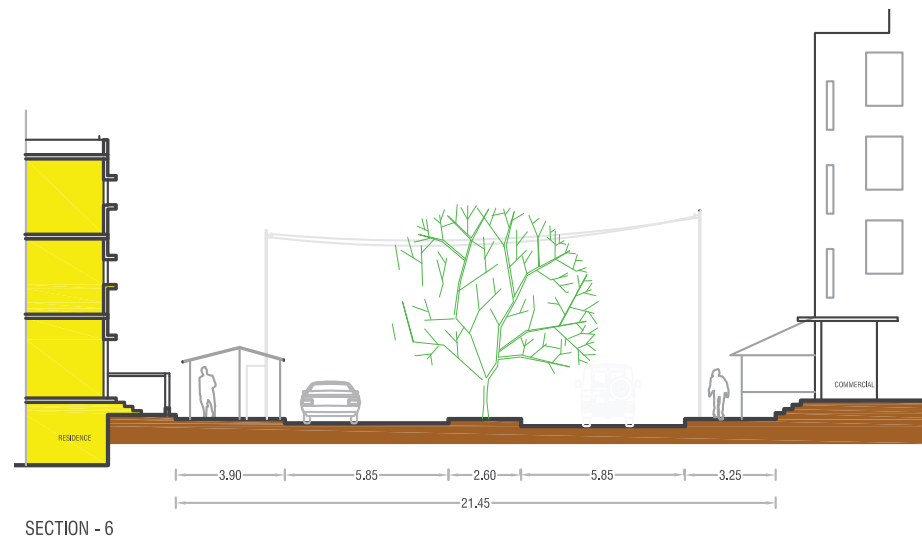
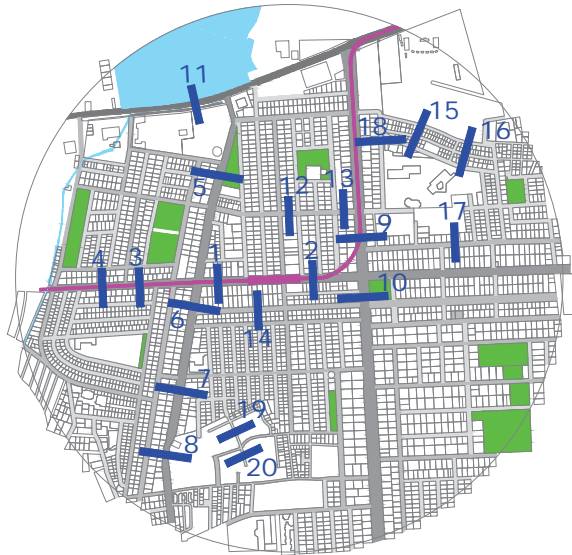
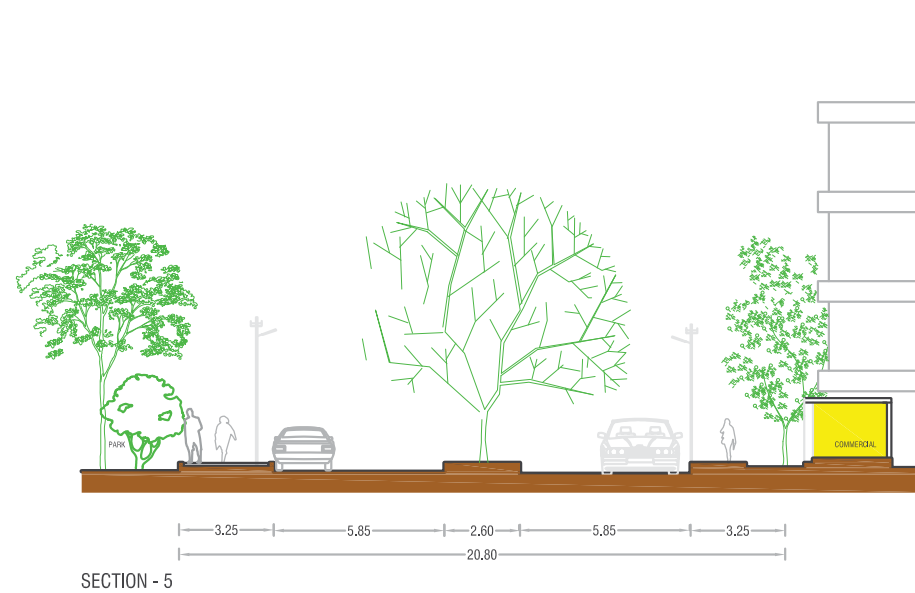
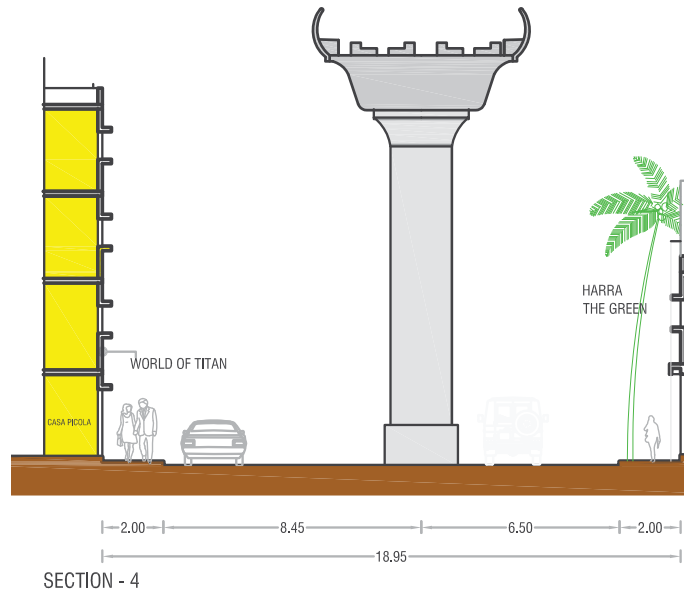
SECTION - 2



SECTION - 3

**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**URBAN FABRIC DATA - EXISTING STREET SECTIONS**

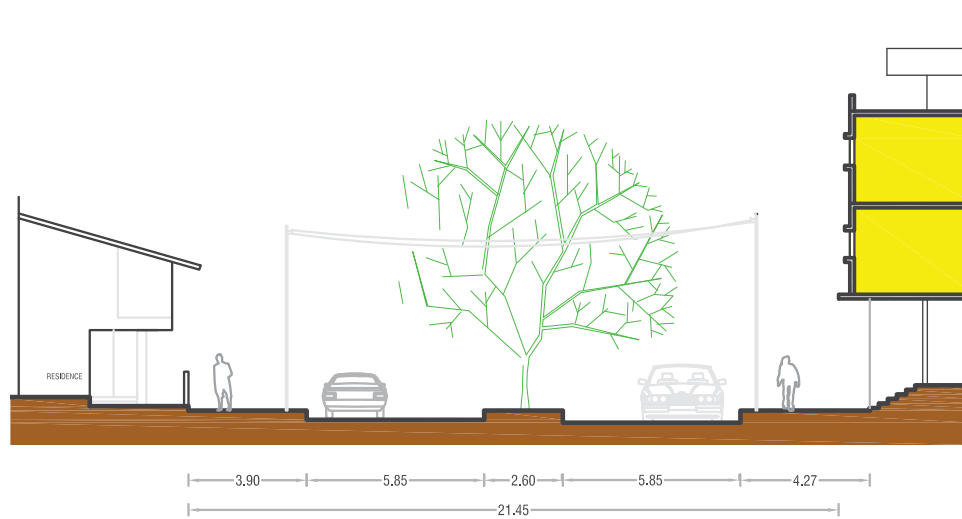




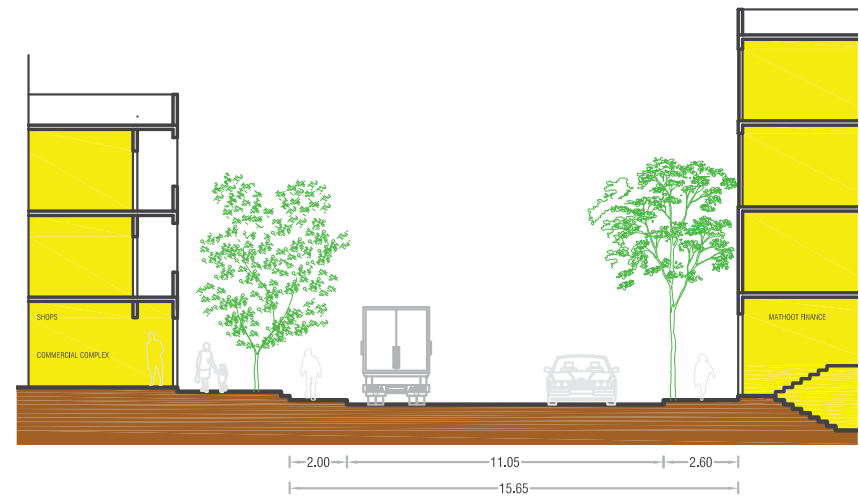
TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

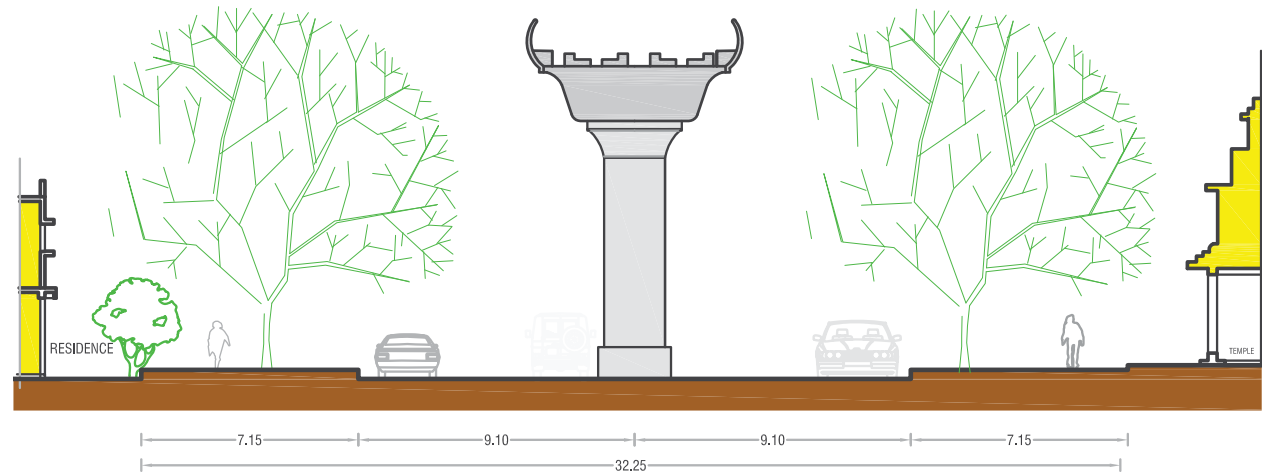
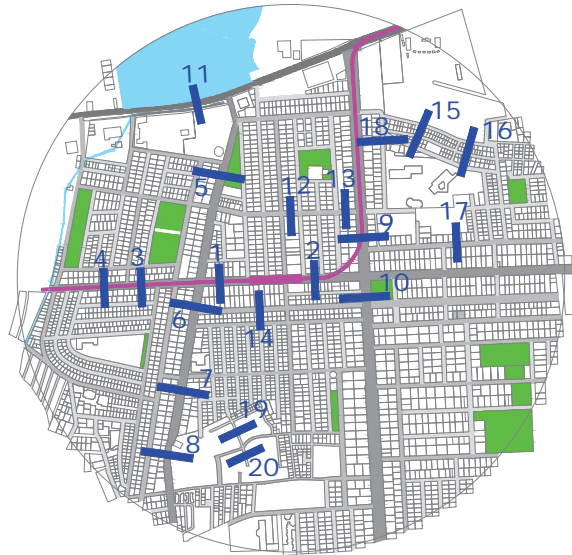
URBAN FABRIC DATA - EXISTING STREET SECTIONS



SECTION - 7



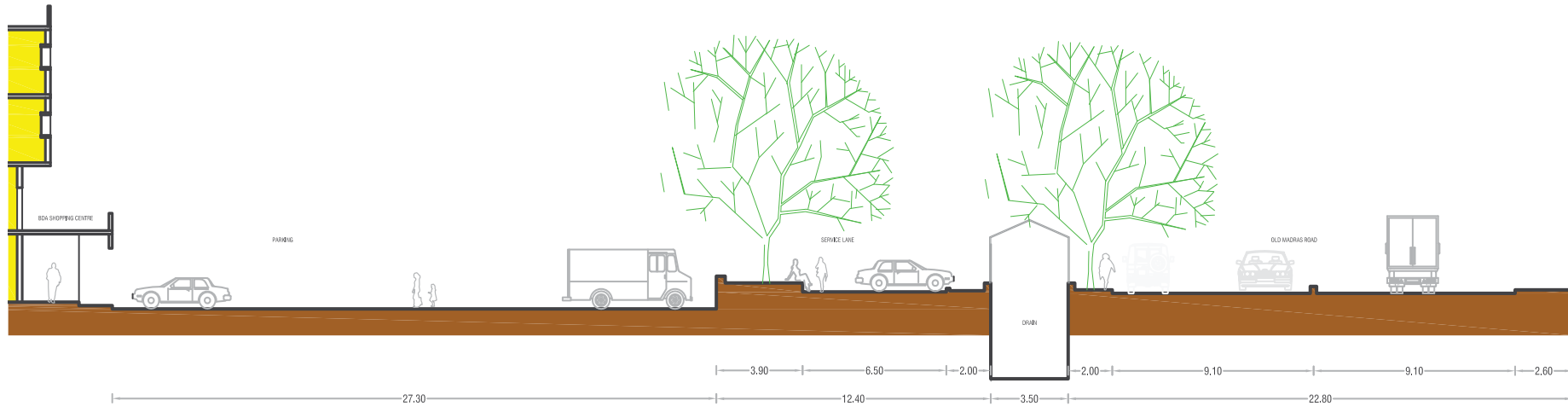
SECTION - 8



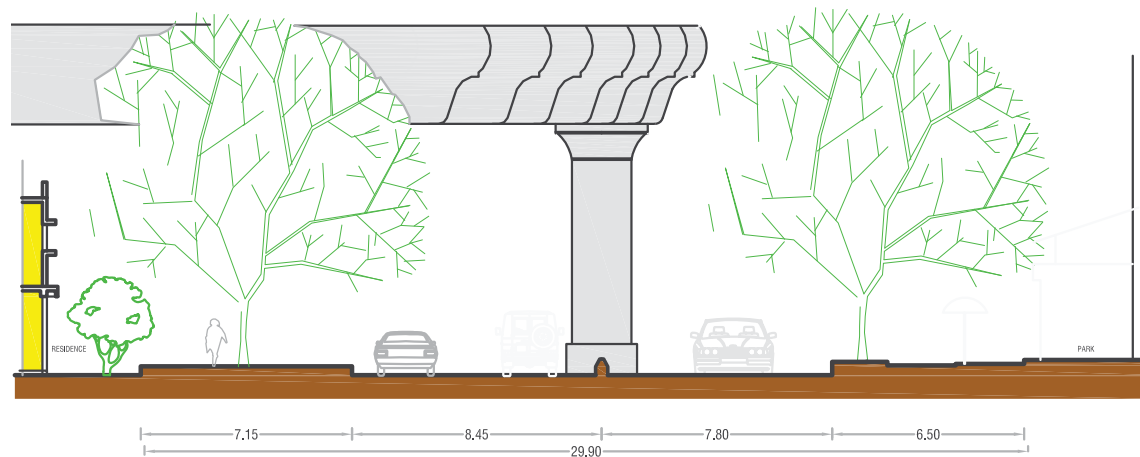
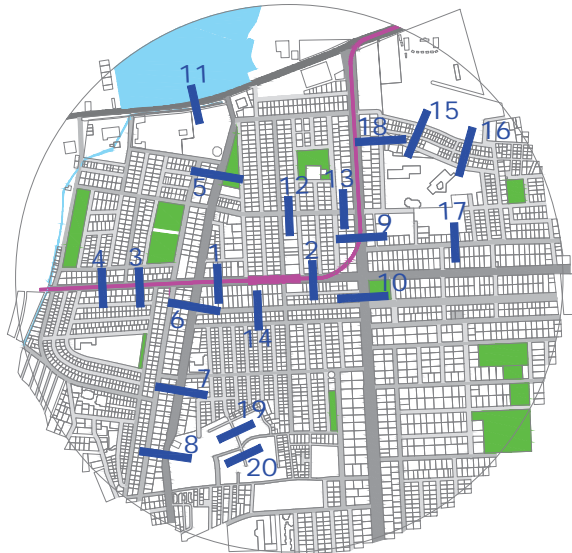
SECTION - 9

**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**URBAN FABRIC DATA - EXISTING STREET SECTIONS**



SECTION - 11



SECTION - 10

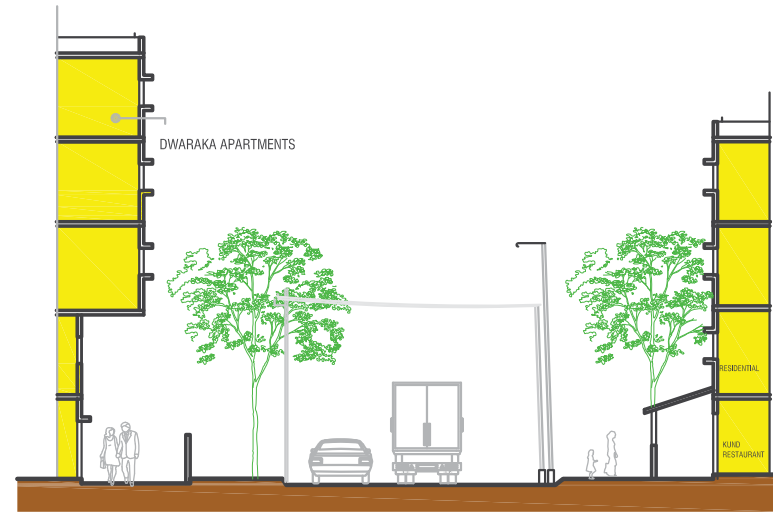
TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

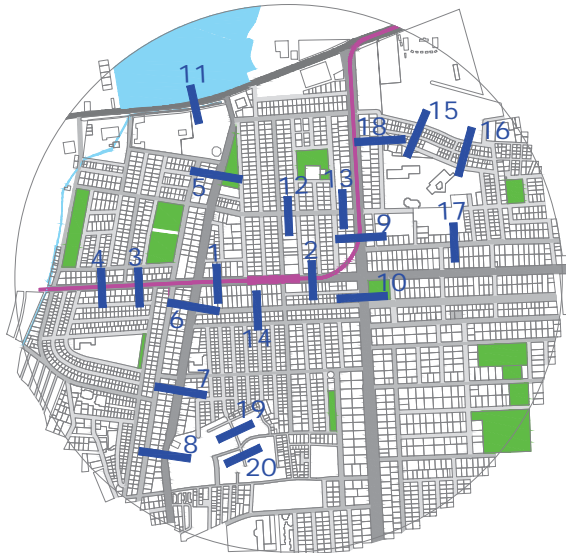
URBAN FABRIC DATA - EXISTING STREET SECTIONS



SECTION - 12



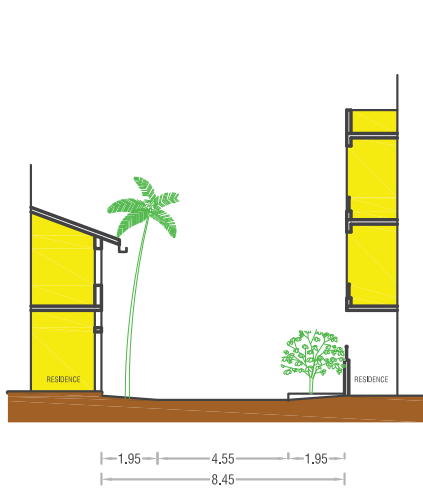
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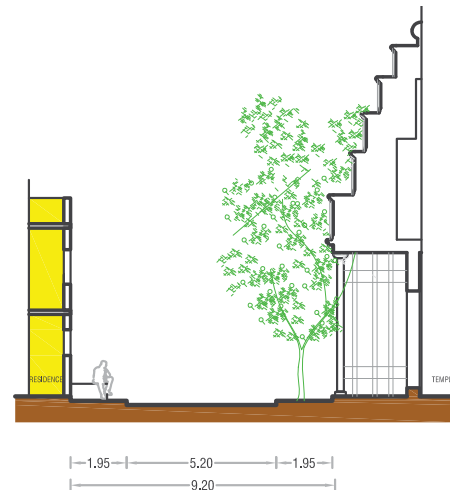
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DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

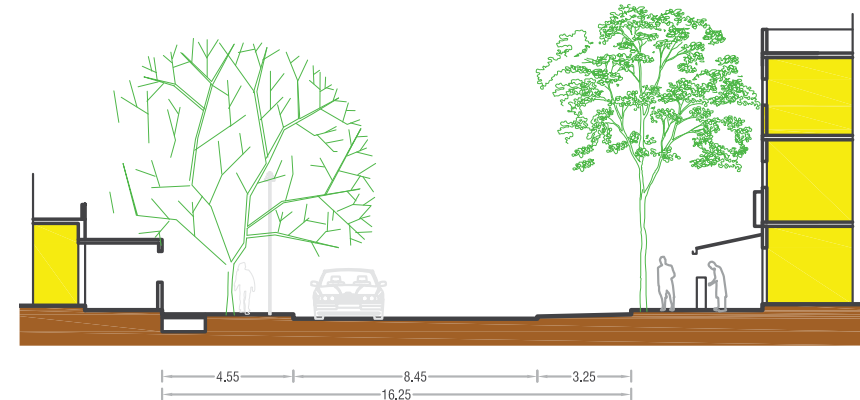
URBAN FABRIC DATA - EXISTING STREET SECTIONS



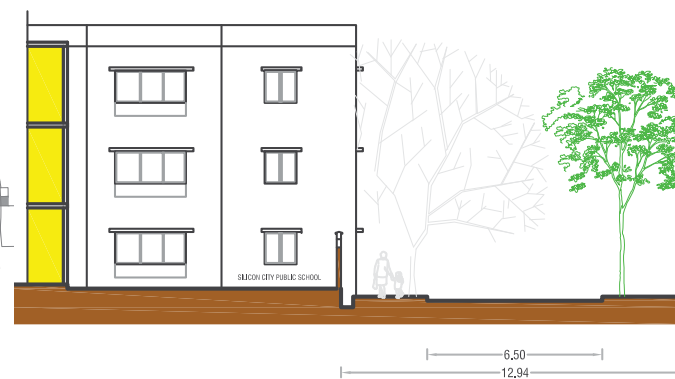
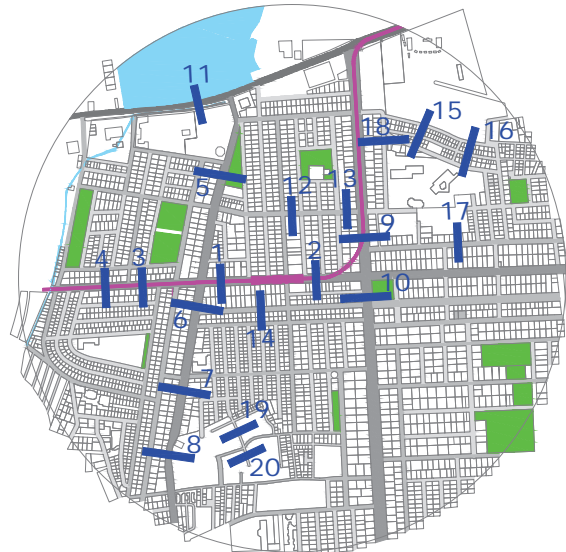
SECTION - 15



SECTION - 16



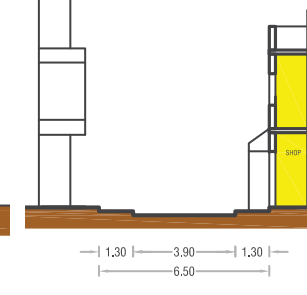
SECTION - 17



SECTION - 18



SECTION - 19



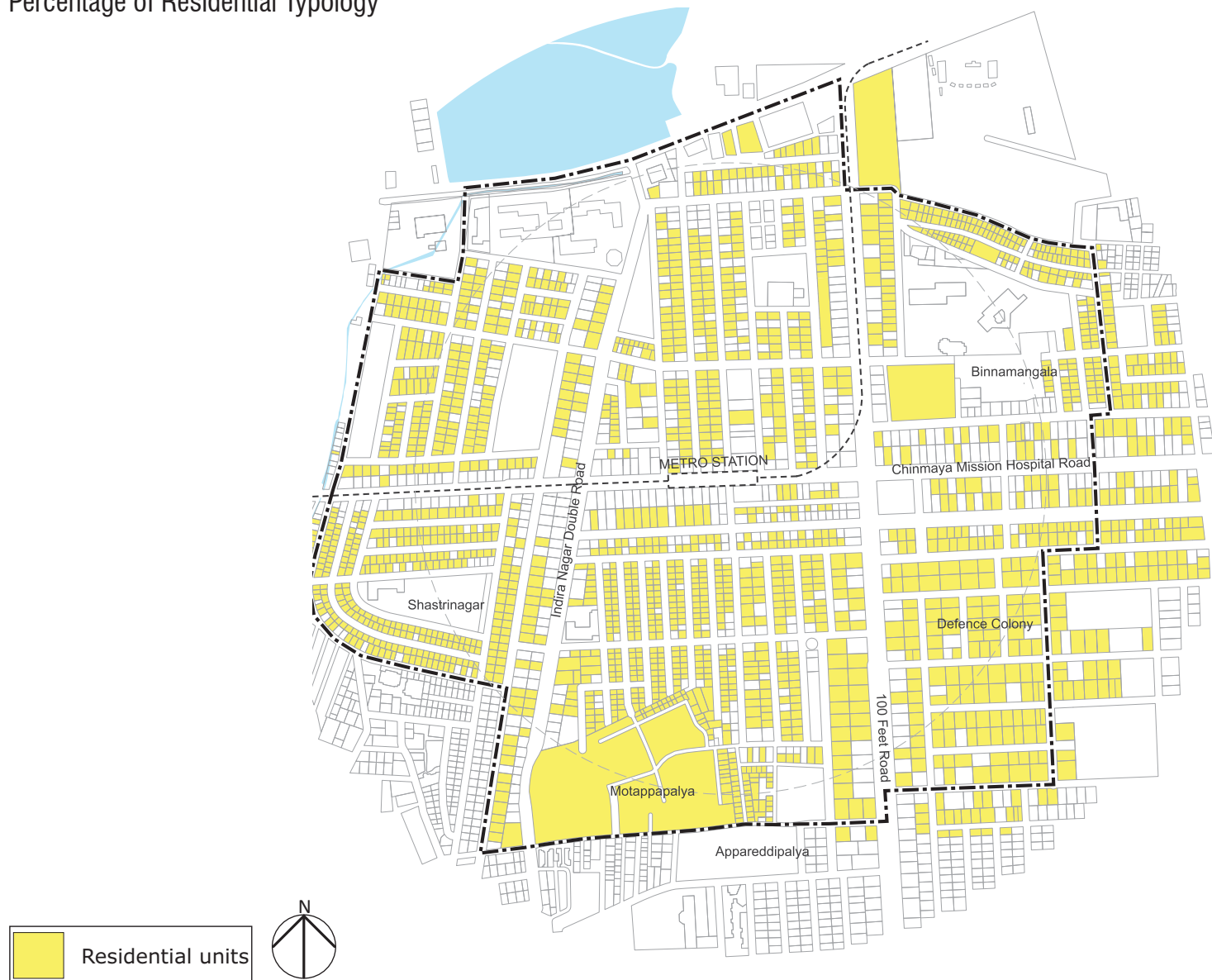
SECTION - 20

TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

URBAN FABRIC DATA - RESIDENTIAL TYPOLOGY

Percentage of Residential Typology



» DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

URBAN FABRIC DATA - RESIDENTIAL TYPOLOGY

Types of Residential Typology

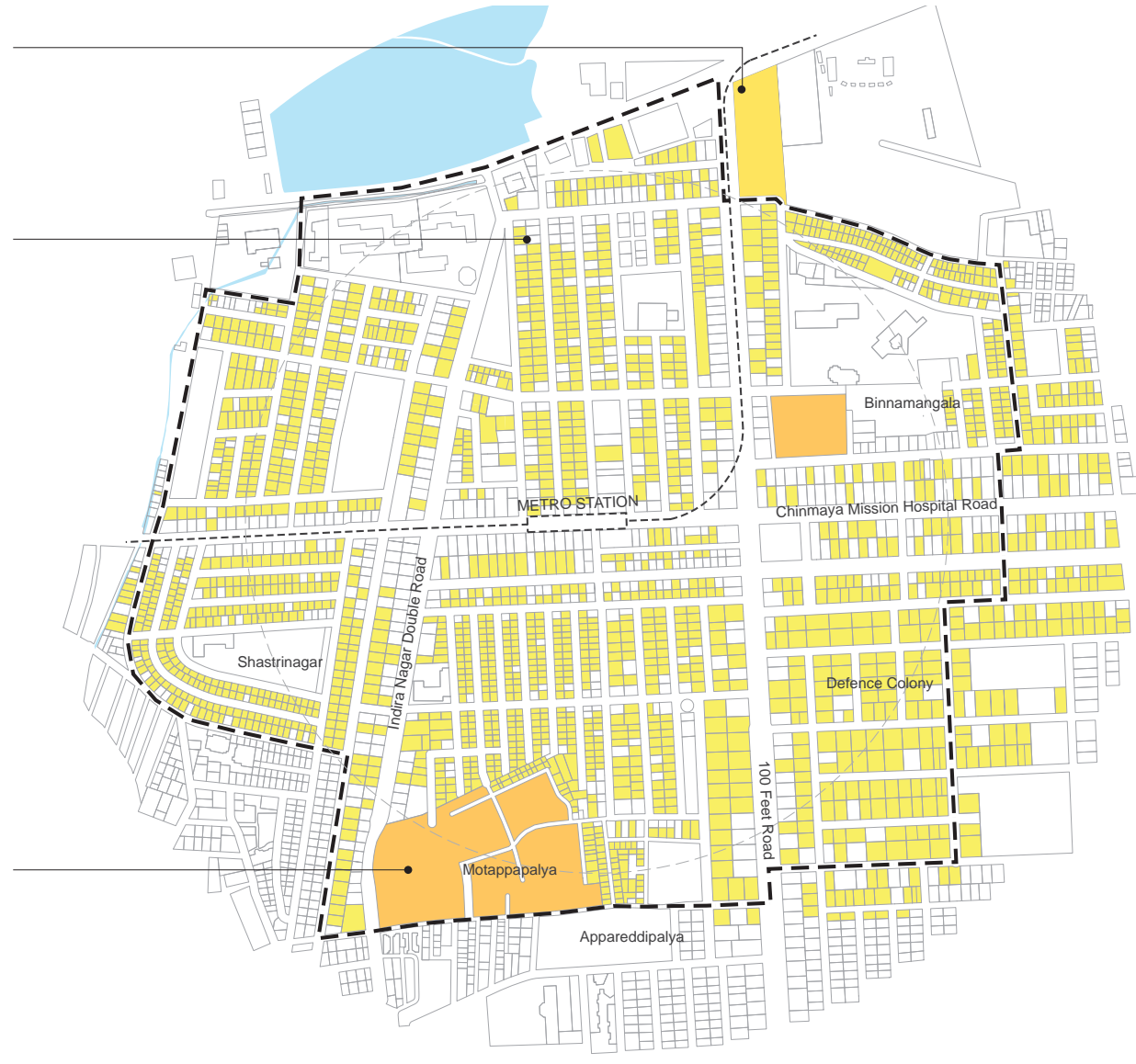
• INFORMAL SETTLEMENTS



• PLOTTED DEVELOPMENT



• ORGANIC SETTLEMENTS



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**»» DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**URBAN FABRIC DATA - RESIDENTIAL TYPOLOGY**

**Description of Residential Typology**

**INFORMAL SETTLEMENTS**

HEIGHT: GROUND STOREY  
 SETBACKS: FRONT OPEN SPACE IS INTERFACE BETWEEN THE STRUCTURES AND THE STREET. HOUSEHOLD ACTIVITIES SPILL OVER ONTO FRONT OPEN SPACE.



**SINGLE DWELLING UNIT, PLOTTED TYPE**

HEIGHT: G-G+1 STOREY  
 PLOT SIZES: VARY FROM.....  
 SETBACKS: DETACHED UNITS. MARGINS TEND TO BE USED FOR PARKING.  
 DETAILS: LARGE BALCONIES ACT AS AN INTERFACE WITH THE STREET.



**MULTIPLE DWELLING UNITS, PLOTTED TYPE**

HEIGHT: G+2-G+3  
 PLOT SIZES: VARY FROM.....  
 SETBACKS: DETACHED UNITS. MARGINS TEND TO BE USED FOR PARKING.  
 DETAILS: GROUND STOREY IS CONVERTED FOR COMMERCIAL USE ALONG MAJOR ROADS .



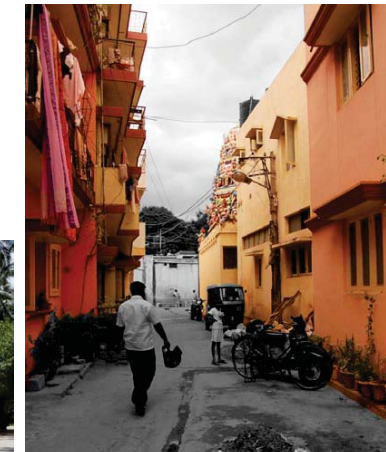
**APARTMENTS, PLOTTED TYPE**

HEIGHT: G+3 AND MORE.  
 PLOT SIZES: VARY FROM....  
 SETBACKS: DETACHED UNITS. MARGINS TEND TO BE USED FOR PARKING  
 DETAILS: GROUND STOREY IS CONVERTED FOR COMMERCIAL USE ALONG MAJOR ROADS.



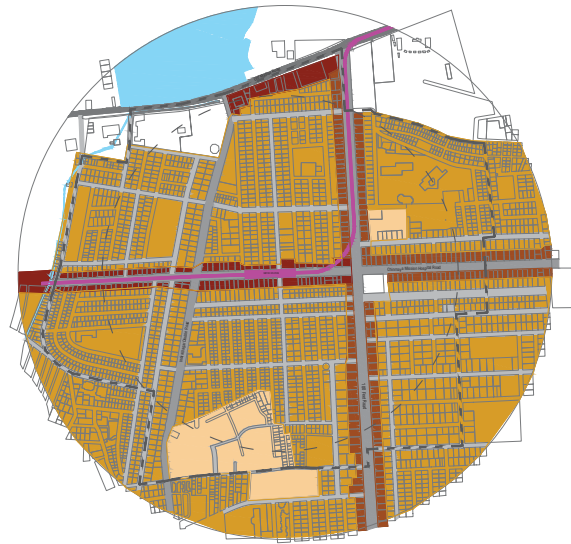
**ORGANIC SETTLEMENTS**

HEIGHT: G-G+3  
 PLOT SIZES: VARY FROM.....  
 SETBACKS: FRONT SETBACKS FORM PUBLIC REALM. THERE ARE NO SIDE MARGINS.  
 DETAILS: SETTLEMENTS HAVE NARROW ORGANIC INTERNAL STREETS.

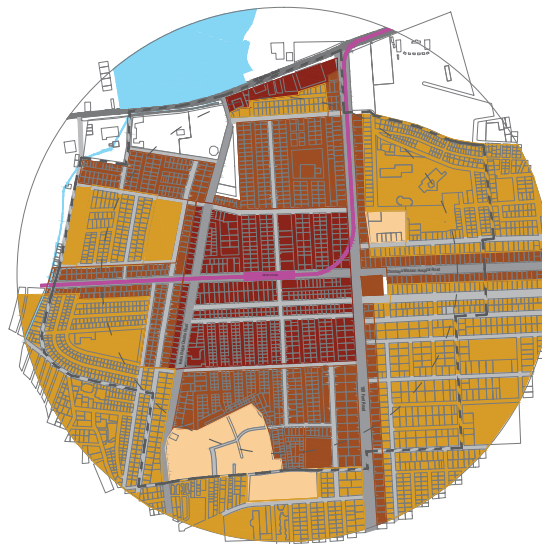


»» DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

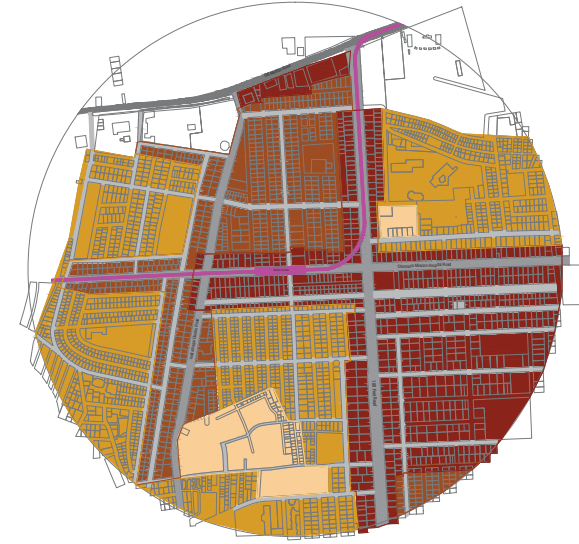
REAL ESTATE PRICE - 1990, 2000, 2010



Map showing the Real Estate prices in the precinct in 1990  
Source: Compiled from information from Mr. BM Jayeshankar and Mr. MK Chandrashekar



Map showing the Real Estate prices in the precinct in 2000  
Source: Compiled from information from Mr. BM Jayeshankar and Mr. MK Chandrashekar



Map showing the Real Estate prices in the precinct in 2010  
Source: Compiled from information from Mr. BM Jayeshankar and Mr. MK Chandrashekar



LEGEND	
	150-200 Rs/sqft
	120-150 Rs/sqft
	100-120 Rs/sqft
	50-100 Rs/sqft

LINE TYPE	
	METRO
	DRAIN/NALA
	150M CORE
	500M RADIUS
	STUDY AREA

LEGEND	
	1800-2000Rs/sqft
	1000-1800 Rs/sqft
	600-1000 Rs/sqft
	400-600 Rs/sqft

LINE TYPE	
	METRO
	DRAIN/NALA
	150M CORE
	500M RADIUS
	STUDY AREA

LEGEND	
	8,000-10,000Rs/sqft
	6,000-8,000 Rs/sqft
	3,000-6,000 Rs/sqft
	1800-3000 Rs/sqft

LINE TYPE	
	METRO
	DRAIN/NALA
	150M CORE
	500M RADIUS
	STUDY AREA



TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU

DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

PHOTO DOCUMENTATION

Activities



Raghavendra Swamy Mutt



Informal activity on Sri Krishna Temple Road



Shops on Sri Krishna Temple Road



Small shops on Sri Krishna Temple Road



Fast food on CMH Road



Small shops on CMH Road



Informal activity on CMH Road



Retail along 100ft Road



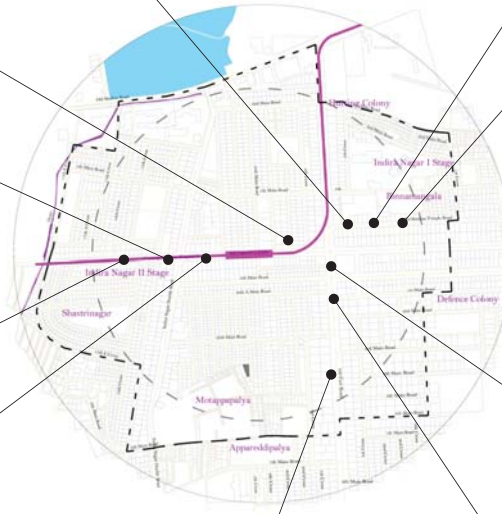
Informal activity adjacent Bus stop on 100ft Road



Retail on CMH Road



Abutting public park on 100ft Road



» DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW

PHOTO DOCUMENTATION

Built Character



5th Main Road Indiranagar 1st stage



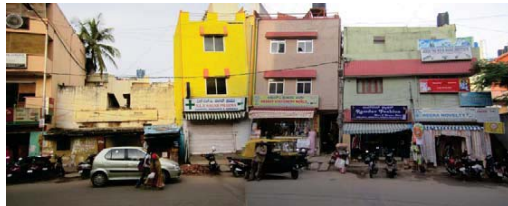
Informal settlement along 100ft Road



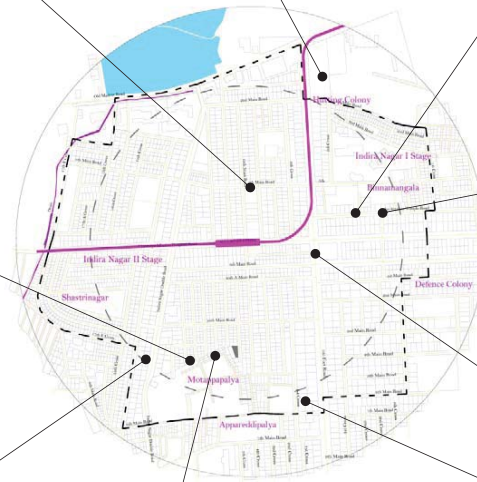
Opp BBMP Park on CMH Road



Mottappanapalya



Street edge on Double Road in Mottappanapalya



Old Binnamangala



100ft Road & CMH Road Jn.



Main Road in Mottappanapalya



Apartments near SSB School



**TOWARDS A WALKABLE AND SUSTAINABLE BENGALURU**

**>> DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

**PHOTO DOCUMENTATION**

**Street Character**



BDA Commercial Complex



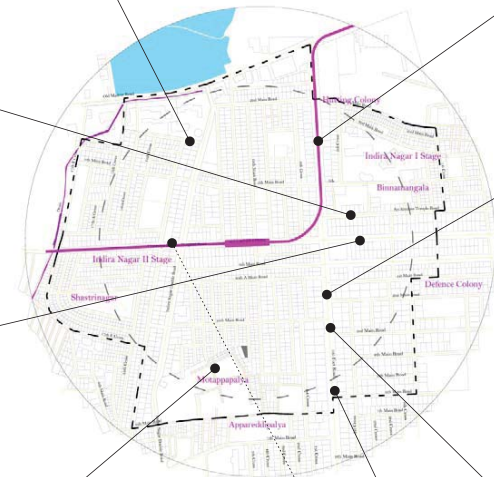
Informal Settlement along 100ft Road



Along Sri Krishan Temple Road



Bus Stop on 100ft Road



CMH Road



100ft Road



Motappanapalya



CMH Road



Bus stop on 100ft Road



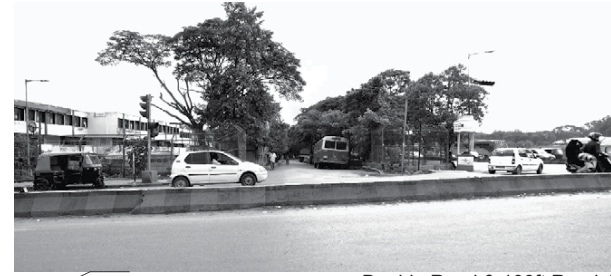
**DATA COLLECTION AND STATUTORY DOCUMENTS REVIEW**

PHOTO DOCUMENTATION

Junctions



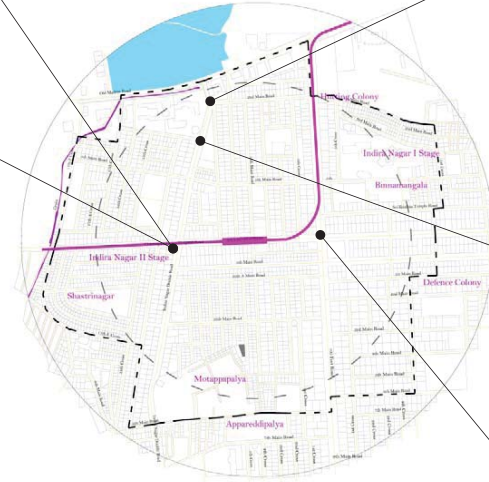
CMH Road & Double Road Jn



Double Road & 100ft Road Jn



CMH Road & Double Road Jn



near BDA Commercial Complex



CMH Road & 100ft Road Jn





## REFERENCES



## REFERENCES

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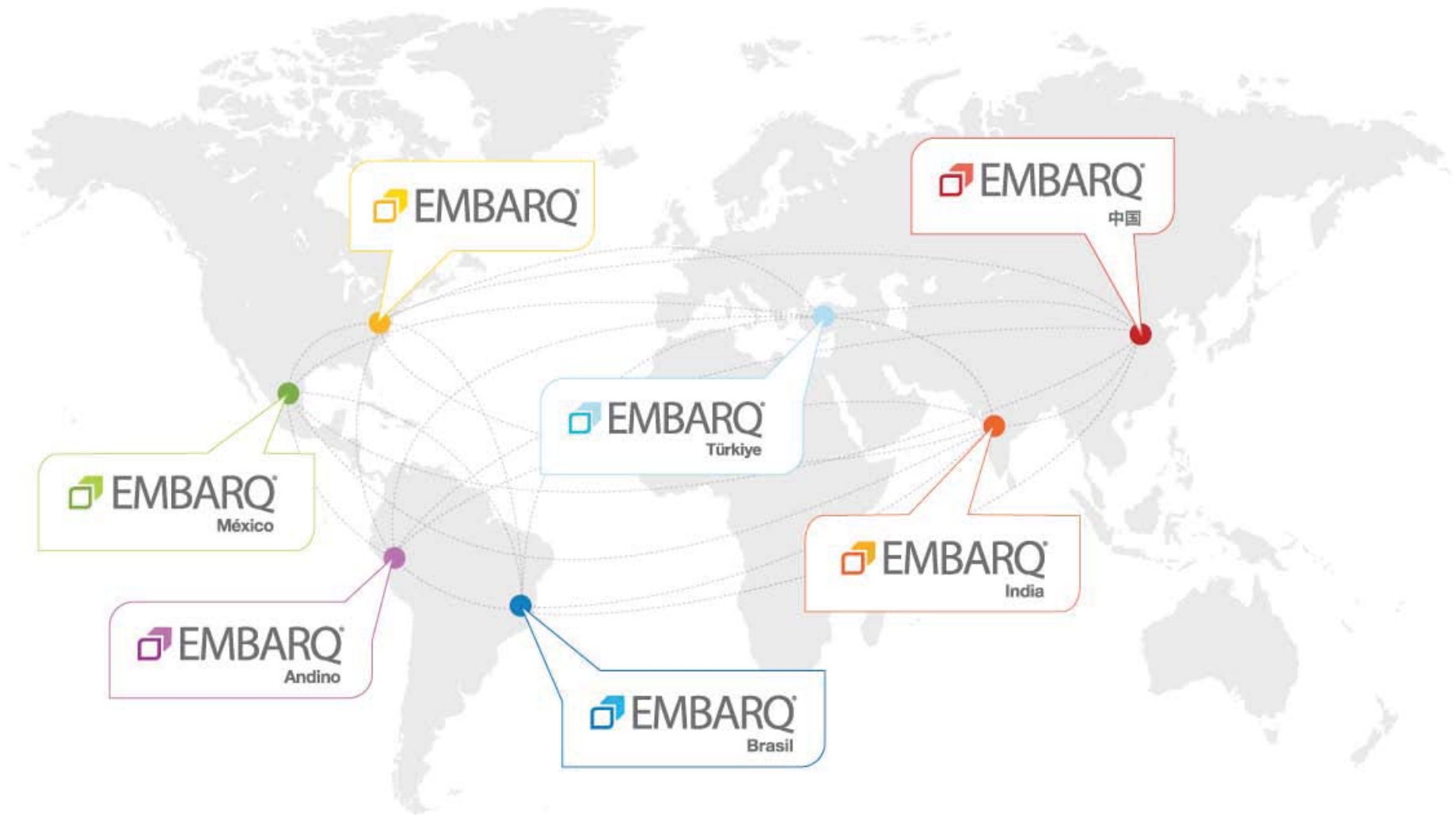
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